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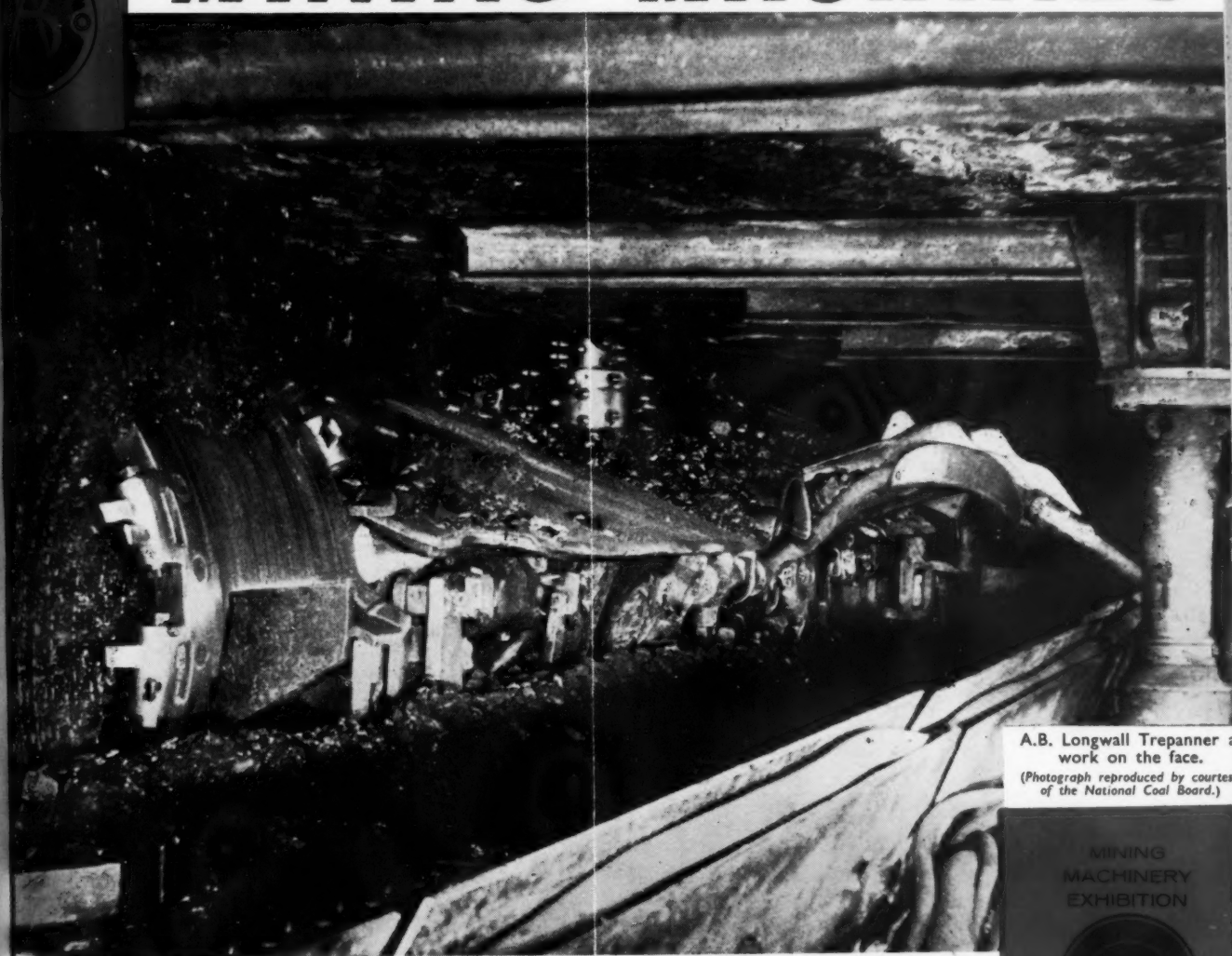
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London, May 15, 1959

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Self-help for Lead and Zinc

ON the whole, it can be said that the progress achieved at the recent United Nations conference on lead and zinc has exceeded expectations, particularly heartening being the announcement of voluntary cuts in production and exports to bring supply more closely into balance with demand.

This, of course, is precisely the remedy which was so effectively adopted by major Free World copper producers in a similar situation of excess supply, and it may logically be anticipated that the same principle of self-help, if rigorously applied, should prove equally rewarding in the case of lead and zinc. There is, however, one significant difference between the two situations, inasmuch as the difficulties of the copper producers were not aggravated by the imposition of import quotas by the largest consumer.

A report issued by the 20-nation Lead and Zinc Committee of the U.N. Economic and Social Council states that estimated supplies of lead and zinc metal in the second half of 1959 are to be reduced by some 45,500 and 52,000 tonnes respectively, as a result of curtailments of production and sales by various countries, some of which had been announced before the conference began. These undertakings, it is stressed, are "voluntary" and do not entail formal commitments.

Assuming consumption continues at the level projected at the beginning of the meetings, the excess of available new supply of lead metal (which had been estimated at 150,000 tonnes for 1959) will decrease to an annual rate of 59,000 tonnes in the second half of 1959. For zinc metal the decrease, similarly calculated, would be from 120,000 tonnes to an annual rate of 16,000 tonnes.

Revised outputs of refined lead in 1959, with the original estimates in brackets, are: Australia 230,000 tonnes (243,000), Canada 115,000 (122,000), France 82,000 (84,000), Mexico 190,000 (200,000), Peru 57,000 (64,000), Spain 65,000 (68,000).

Giving further details of how the estimated reduction in supplies of lead would be achieved, the report said that the Soviet Union would reduce exports of lead metal this year by 10-15 per cent compared with last year, while South Africa would reduce her lead sales for the remainder of this year by 3,500 tonnes.

The committee notes that substantial curtailments are being made or have been made in the available supplies of concentrates as a result of reductions in mine production or concentrate exports by Australia (3,000 tonnes in the second half of 1959); Mexico (21,000 tonnes a year from the 1957 rate by the end of 1959); Canada (9,000 tonnes below the 1958 level), the Federal Republic of Germany (15,000 tonnes below 1957); Peru (15,000 tonnes below 1957); South Africa (15,000 tonnes below 1957); U.S. (65,000 tonnes below 1957). Some of these curtailments, which are in terms of recoverable metal content, have already been reflected in the reported reductions in the supply of lead metal.

As regards zinc, the reduction in supplies will be achieved partly by the following cuts in commercial exports and sales during the remainder of 1959, as announced at the conference: Australia 3,500 tonnes (including sales of 1,400 tonnes of metal

refined in Britain from Australian concentrates); Belgium 4,500 tonnes (Belgian production of metal was reduced in 1959 to 20,000 tonnes below the 1957 level); Belgian Congo, 3,000 tonnes. The Soviet Union will reduce her exports by 10-15 per cent below the 1958 level, including a reduction of 4,000-6,000 tonnes in exports to countries other than the "centrally planned" (Communist) countries.

From the original estimate of 229,000 tonnes for 1959, Canada will cut her output of zinc metal to 214,000 tonnes, Mexico from 60,000 to 55,000 tonnes, Peru from 29,000 to 27,000 tonnes, and the U.S. from 810,000 to 795,000 tonnes. Actual production and sales in the U.S., however, will depend upon the decisions of the producing companies as the year proceeds.

The report also refers to substantial curtailments in the available supplies of zinc concentrates as a result of reductions in mine production or concentrate exports by Australia (11,000 tonnes in the second half of 1959); Canada (30,000 tonnes below the 1958 level); the Federal Republic of Germany (14,000 tonnes below 1957); Italy (7,000 tonnes below 1957); Mexico (37,000 tonnes below 1957); Peru (32,000 tonnes below 1957); South Africa (4,000 tonnes below 1957); and the U.S. (69,000 tonnes below 1957). Some of these curtailments have already been reflected in the reported reductions in the supply of zinc metal.

Italy has announced a specific reduction in exports of concentrates of 3,500 tonnes during 1959. Some countries are not in a position to announce reductions, but intend to discuss the possibility with their industries.

Urging governments and industries to avoid any course of action which might frustrate these efforts to bring about a satisfactory balance between supply and demand, the report emphasizes that the effect of the reductions might well be frustrated if producers who had not yet announced curtailments in production of exports or sales were to take advantage of the situation created in world markets by making increases to levels substantially beyond those assumed in the course of the committee's discussions, or if governments were to make disposals from their non-commercial stocks.

The possibility that short-sighted producers might rush to cash in on the efforts of others is, of course, a risk which is inseparable from any scheme without full international backing, but so much support has already been forthcoming from the principal producing and exporting countries (including the U.S.S.R.) that the chances of success must be regarded as distinctly hopeful.

All this is encouraging as far as it goes, but it has to be borne in mind that, ideally, the way to bring supply into balance with demand is not to reduce production but to stimulate the expansion of demand. This point has not been lost sight of in the report, which stressed "the great importance of increased consumption". A reminder of what the lead and zinc industries are doing in this direction is afforded by the report in our previous issue entitled, "Wider Uses for Lead and Zinc" (8/5/59, pp. 496 and 497).

The voluntary restrictions announced after the conference are essentially *ad hoc* measures to deal with a situation which in any case will not indefinitely persist, assuming that long-term projections of world consumption of lead and zinc are substantially correct. The basic objective, clearly, is to prevent such situations from recurring, and from this aspect the conference was notable for what may prove the initial step towards the establishment of permanent machinery for stabilization of the two commodities.

Plans for a lead and zinc study group were discussed. It was decided to send draft rules of procedure to participating governments and to invite them to say whether they

would join the group. It is generally believed that the study group will be set up within a few months, but delegates agreed that its first meeting should not be held until the Secretary-General was satisfied that a sufficient number of major exporting and importing countries had signified their intention to become members.

The draft rules of procedure, which were described as only tentative and subject to final drafting, stipulate that the group will provide opportunities for inter-governmental consultations and make studies of the world situation in lead and zinc, including the organization of adequate statistics. It will also consider possible solutions for special problems relating to the industry and report to members' governments, making recommendations as necessary. Membership will be open to United Nations members, or to appropriate specialized agencies, or contracting parties to GATT, who have a major interest in lead and zinc production or consumption. It is understood that the group looks for the ultimate creation of an international agreement on lead and zinc similar to pacts made for other commodities such as wheat and sugar.

Without overlooking the difficulties involved, which we have never sought to minimize, it can fairly be stated that the conference has approached this onerous task in a realistic and practical manner, and that prospects of reaching a satisfactory solution appear to have improved considerably since the previous international conferences in September and November last year.

One major disappointment is the absence from the reports of any indication that the U.S. Government is reconsidering the whole question of import quotas, which become still less defensible in view of the agreed production and export cuts. The very fact that it has been possible to organize voluntary action on such a widely international basis, points to a growing realization that problems of world concern cannot be solved by the unilateral actions of individual governments, which are much more likely to result in making a difficult situation even worse for all concerned. Now that the world situation in lead and zinc is at last being approached on an international basis, is it not time for the U.S. Government to have second thoughts?

MINING TAXATION IN BRITAIN

The necessity for securing a favourable taxation climate before it could be expected that any London mining house would put new money into Cornwall, was stressed by the president, Mr. F. Lyde Caunter, at the annual meeting of the Cornish Mining Development Association. Mr. Caunter expressed the opinion that the Chancellor of the Exchequer was very sympathetic, but that he probably had difficulty in convincing Treasury officials of the justice of the industry's case.

As was to be expected, considerable prominence was accorded to the thorny subject of mining taxation in the report of the Executive Committee, presented by the Association's chairman, Mr. J. H. Trounson. According to the report, the consensus of opinion at the two-day symposium held in London last September for the purpose of reviewing the future of non-ferrous mining in Great Britain and Ireland, was that there were still good prospects of finding and working metallic ores successfully in many parts of Britain, including Cornwall, but the possibility of doing so was dependent upon a drastic revision of mining taxation.

The report also referred to a conference held in Truro in January this year to consider trade and employment, at which very strong representations were made to the Parliamentary Secretary to the Board of Trade. Mr. Troun-

son, who attended this conference with the hon. secretary, Mr. L. G. Brown, expressed himself as pleasantly surprised to find so much general support forthcoming from non-mining people for mining as an industry which could give employment to Cornwall.

The authors of the report evidently consider that there are reasons for thinking that "the unanswerable case for amending mining taxation in Britain" might soon receive the official attention it deserves. Meanwhile, every opportunity is being taken by the Association to press for tax concessions. Consideration is at present being given to putting down some new clauses to the Finance Bill and it is understood that the support of some influential Members of Parliament has already been secured. Two of these clauses seek to secure exemption from income tax and profits tax respectively for a new property for three years after the mine has reached full production. These are the kind of tax concessions which have proved such an incentive to mining enterprise in Canada, Eire and other progressive mineral producing countries.

VENTILATION COSTS IN ULTRA-DEEP MINES

The continuing development of mining techniques that allow for ore extraction at increasingly deep levels have, in turn, mooted additional problems in the field of ultra-deep level mining. These problems are likely to be mainly economic, and South African sources envisage cooling plants with up to 1,000 tons capacity of refrigeration, situated in central positions underground and supplying cold water to the stope face.

Ultra-deep level mining at the East Rand Proprietary Mines has revealed that in that area, for example, at depths around 12,000 ft., rock temperatures will be in the region of 130 deg. F. It has been assumed for cost calculation purposes that at air velocities of 500 to 600 ft./min., the maximum permissible wet bulb temperature will be 92 deg. F. Heat flow from the rock under these conditions will be at 200 B.Th.U's/min. per 5 sq. ft. of rock face, which would require delivery of air at 86 deg. F. wet bulb to a face 300 ft. in length. It is thought that the final layout could make provision for the ventilation of a number of stope faces in series, the air being re-cooled on each level.

Total ventilation costs, excluding capital redemption, now in the region of 2s. 9d. per ton of deep mined reef, are expected to rise to the vicinity of 4s. 6d. per ton mined at 12,000 ft. Reduction of this figure would depend largely upon improving the present rates of stope face advance.

It is felt that future work on the ventilation of ultra-deep mines might be directed towards the establishment of relationships between wet bulb temperature and both work output and total ventilation costs. It is also desirable that further studies be completed into heat flow from the rock, and of the performance and application of cooling plants.

THE GROWTH OF BRITAIN'S STEEL CAPACITY

In the continuing controversy concerning the future status of the British steel industry, one argument advanced by the proponents of State ownership has been conclusively answered. In the factual report of the British Iron and Steel Federation for 1958, there is convincing evidence that the industry has not failed to provide the cheap and surplus supplies of steel which are an essential element of our national requirements. There is also evidence that the Federation stands committed to a bold and imaginative programme of further expansion, designed not only to raise technical efficiency to the highest turrets, but to increase capacity to unprecedented heights.

Notwithstanding last year's sharp recession, which the Federation regards as a merely temporary pause in the long-term rising demand, the post-war development programme has not been halted. Expenditure on new plant and equipment last year was the highest ever, amounting to no less than £105,000,000, and still bigger capital expenditures are contemplated in the next four years.

With current production running at the rate of less than 19,000,000 ingot tons per annum, there is room for legitimate doubt concerning the estimated requirement of 29,000,000 tons in 1962 or 1963. That, however, is the accepted target of the steel industry, and as the B.I.S.F. report points out, it has been fixed not by the steel makers themselves, but by consultation with government departments, those responsible for the public supervision of the industry, steel consumers, and representatives of the industry itself. The further development programme has been formulated on the best expert advice and is largely regulated by the plant makers' ability to supply new plant.

It will be gathered that the Federation is optimistic about the future outlook. Recovery has, in fact, already begun. Stocks which had grown to abnormal proportions have been considerably reduced, and it was expected that the measures taken by the government to stimulate the economy would lead to a higher rate of orders about the middle of the year. Happily, the wait for the rise has been foreshortened. Buyers have reappeared on the market. Work for plant and personnel is already more plentiful, and this rising trend is even more pronounced abroad than in United Kingdom steel production.

It was in the United States that the slump of 1958 was most severe. In twelve months, American ingot production has more than doubled. German steel output is rising rapidly, and it is not beyond the bounds of possibility that world steel production, which reached the higher peak of 287,000,000 tons in 1957, declining to 268,000,000 tons in the following year, may exceed all records in 1959.

With modern and efficient plant, British steel is well equipped to cope with any potential increase in demand and has less reason to fear foreign competition, since costs and prices have been kept at competitive levels.

EXPLORATION IN NORTHERN IRELAND

When presenting his estimates in the Northern Ireland House of Commons on May 6, Lord Glentoran, the Minister of Commerce, said that his department was planning to spend a further substantial sum on mineral exploration. To speed up the work and to provide data on which further bores could be located, the Ministry of Commerce had commissioned a full geological survey to be carried out under the supervision of the Geological Survey and Museum of Britain. The estimated cost of the project was some £110,000 which would be spread over several years.

The minister said that the latest scientific methods would be used, starting with aeromagnetic and gravity surveys. Depending on the results achieved these preliminary surveys would be followed by a seismic survey and borings for interpretative purposes. By using these modern methods it was expected to acquire the maximum information about mineral deposits in Northern Ireland at the minimum cost.

It is hoped to complete the aeromagnetic survey this year and at the same time the government will continue with the programme of shallow bores which is bringing much useful information to light. While the Minister hopes that the findings will suggest scope for further economic development in Northern Ireland he considers it would be unrealistic to look for major expansion from local mineral deposits.

Minerals for India's Expanded Tata Steel Output

WITH the commissioning of the Tata Iron and Steel Co.'s new Rs.70,000,000 blast furnace at Jamshedpur, India, in October last, the company's vast expansion programme is nearing completion, and greatly increased quantities of raw materials will have to be mined and handled at the steel works to sustain output.

Designed to double the 1955 production of steel, the so-called "Two Million Ton Programme" (TMP) is by far the largest expansion project in the private sector of India's industry. The company's total capital expenditure on expansion over the period 1955-60, including ancillary schemes and annual replacements, is over Rs.133 crores, representing well over one-fifth of the total outlay on organized industries in the private sector during the Second Five-Year Plan period. The recently completed blast furnace is one of the largest in the world and is rated to produce 1,650 tons of iron a day.

Ranging from the winning of ore at the mines to the shaping of the finished steel, the TMP has been carried out in collaboration with the American company of Kaiser, and was grafted on to an earlier expansion project aimed at increasing output from 800,000 tons to 931,000 tons of finished steel annually. It has involved the marshalling of

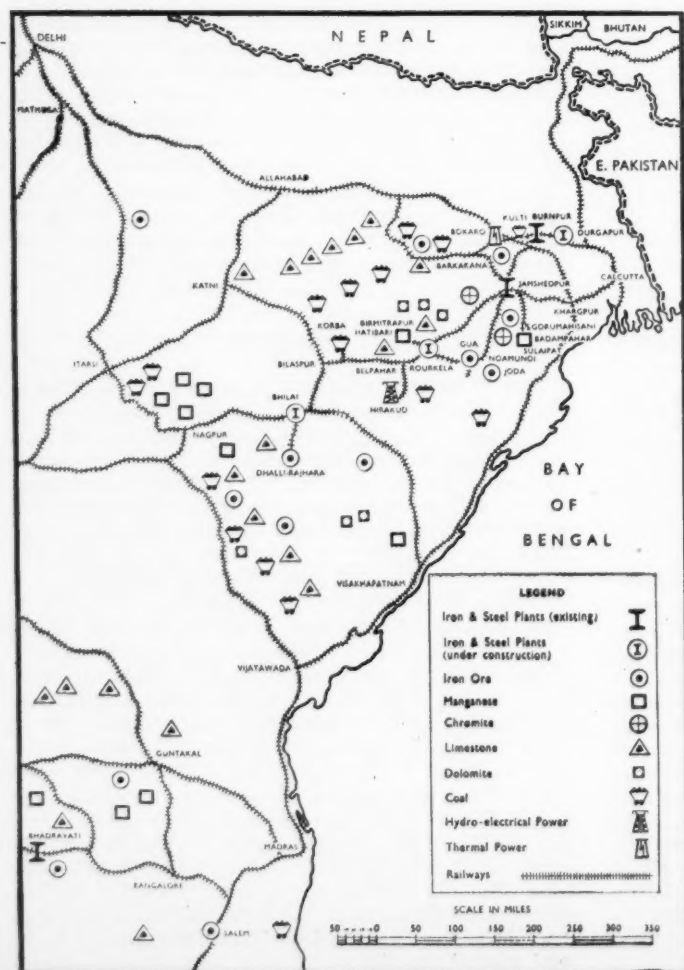
plant and equipment from nine countries and three continents.

Jamshedpur is advantageously placed as regards sources of raw materials, the iron ore, in particular, coming from the company's ore mines, which are all within a radius of 100 miles. Before expansion, Jamshedpur used 2,000,000 tons of iron ore a year from mines at Gurumahisani, Badampahar, Sulaipet, and Noamundi. Following expansion, some 3,400,000 tons of iron ore will be needed. This quantity will suffice for the 2,000,000 tons steel output because of sintering and the increased use of scrap now contemplated. The additional requirement will be met by opening up a new iron ore mine at Joda, in the Keonjhar district of Orissa, while one section of the Noamundi mine in the Singhbhum district of Bihar, believed to be the largest in Asia, has been mechanized to step up production.

These two mines will supply 2,350,000 tons of ore a year, all of which would, however, normally have to travel over a railway branch line to Jamshedpur, which is already hard pressed. To meet increasing needs, the South-Eastern Railway is doubling the track on this line and is building a 16-mile extension from Noamundi to Joda, but the same branch line also connects with Gua, whence Indian Iron draws its requirements of ore and its density of traffic is already heavy. A proposal was included in the Second Five-Year Plan to electrify the section of the line from Noamundi to Raj Kharsawan, where the branch line meets the main Calcutta-Bombay trunk route, and according to the railway budget statement for 1958-1959, the electrification plan has been accorded high priority. An alternative plan for the transport of Noamundi and Joda ores may be to build a connecting link between Noamundi and Badampahar, in the Mayurbhanj district of Orissa, whence ores could be hauled to Jamshedpur over another branch line which is believed to have spare capacity.

Coal Requirements

About 2,850,000 tons of coal will be needed by the expanded Tata steel plant, compared with about 2,000,000 tons hitherto. Of this increased quantity, approximately 1,000,000 tons will have to be purchased on the market. The balance will be met from the company's own collieries in the Jharia and Bokaro fields. A coal washery is being set up by the State at



By John Grindrod

Bhojudih to wash the market coal for supply to Jamshedpur, but, for a variety of reasons, this has been delayed and an adequate supply of washed coal is now uncertain for some time. The use of raw coal at Jamshedpur would reduce the efficiency of the blast furnaces, and the greater bulk of the raw coal would add to the congestion on the coal lines.

As well as relying on Bhojudih for supplies of washed coal, Tata Iron and Steel is sinking a good deal of capital on transport and handling facilities at Jamshedpur to link the washery there with the company's other mines in the area so that their coal output can be conveniently brought in for washing. Since the country's reserves of coking coal are very limited, the company considers it imperative that steps initiated by the government for the conservation of metallurgical coal and restricting its use should be fully implemented. For this reason also, it is considered that the establishment of washing plants should have priority. Tata Iron and Steel, in fact, built the first two washeries in the country at Jamadoba and Bokaro, and these have done useful pioneering work on the preparation of Indian coals for the iron and steel industry.

With the limited supplies of Indian coking coal in mind, investigations are now in progress into the beneficiation of middlings, a grade of coal with a 30 to 35 per cent ash content, which is separated from the coking coal in the washing process. Recent tests carried out in Germany have proved the feasibility of recovering good low-ash coals from these middlings. If successful, the process will help to economize in the use of the better-quality coking coal.

Other Materials

Compared with 700,000 tons a year used before the "Two Million Ton Programme", about 1,000,000 tons a year of limestone will be required. Most of this will be met by Bird and Co.'s quarries at Birmittapur, while the balance will come from the company's property at Hatibari.

The pre-expansion requirement of 50,000 tons a year of dolomite for the steel melting shops have been met from the company's quarry at Panposh. To meet the present additional demand of 40,000 tons a year, a new quarry is being opened up at Gomurdhi, near Rajganpur.

India's production of ferro-manganese has hitherto been very limited, and only 15,000 tons a year were produced at the Tata Iron and Steel Works in its blast furnaces, and this was mainly to meet its own requirements. The method of manufacture yielded a product unacceptable to export markets because of its high phosphorus content, this being inevitable because of the nature of the raw materials. Now that electric power is available from hydro-electric projects close to the areas in which the manganese deposits are located, this difficulty can be overcome by electric smelting and it will be to the country's advantage to export ferro-manganese rather than the raw ore, because of the better earnings the former would command.

Up to now, India has exported about 1,000,000 tons of manganese ore a year, of which some 600,000 tons have gone to the United States.

In the Second Five-Year Plan, a target has been set of 160,000 tons for ferro-manganese production. To achieve this, it is assumed that double the quantity of manganese ore would be required, or about one-third of the total quantity mined each year. The government has granted licences for setting up about a dozen ferro-manganese production units in different parts of India, one of which,

established by Tata Iron and Steel, is located at Joda, in the Keonjhar district of Orissa. Situated in the heart of a region rich in manganese deposits, this plant draws hydro-electric power from the Hirakud project. Initially, it will have an annual capacity of 30,000 to 35,000 tons, but this could be later stepped up to 100,000 tons, as necessary.

Producing standard grade high-carbon ferro-manganese, the plant, in the early stages, is expected to have a surplus of 10,000 tons a year after meeting the company's own requirements. When all the proposed units throughout the country have been placed in production, it is expected that there will be a large surplus of ferro-manganese for export. This, the planners estimate, will bring in foreign exchange to the tune of about Rs.10 crores a year.

Benefits of Electrical Smelting of Manganese

Included in the benefits derived from the adoption of electrical smelting of manganese ore at Joda will be the release of blast furnace capacity at Jamshedpur for pig-iron production; a lower coke consumption than by blast furnace production; the replacement of good metallurgical coke by coke breeze and any poor-quality coke; an easing of the transport problem around Jamshedpur. The latter benefit will accrue inasmuch as manganese ore, limestone, and dolomite, used in the manufacture of ferro-manganese will not now require to be transported from the Orissa mines to Jamshedpur, while the finished product from Joda weighs only one-third of the primary raw materials. The manganese ore is brought to the plant at Joda from the nearby mines, while limestone and dolomite is obtained from Birmittapur and adjacent areas. The two rotating hearth furnaces at Joda, both of which have been put in operation, were imported from Norway.

Since deposits of high-grade manganese are not too plentiful in India, some anxiety is felt as regards the very long-term supplies of this ore, and it has been suggested that exports of raw ore be restricted in favour of ferro-manganese. It has also been suggested that mine owners be encouraged to beneficiate the ore, since, at present, 2 tons of low-grade ore, for which there is practically no market, are thrown away for every ton of high-grade ore used.

To meet the increasing demand for refractory bricks consequent upon the expansion of iron and steel production, two new refractory plants are being set up in Orissa, at Rajganpur and Belpahar respectively. The latter, located 180 miles from Jamshedpur, on the Calcutta-Bombay line, is being built by Tata Iron and Steel with technical collaboration and financial participation by the West German firm, Didier-Werke. Output will include some types of basic bricks which have hitherto been imported.

Of the raw materials required for the Belpahar plant, fireclay will be obtained from quarries in the neighbourhood, quartzite will come from the Jamshedpur district, chrome from Sukinda in Orissa, and magnesite from Salem and Mysore. A rotary kiln is to be installed at Salem to calcine the magnesite, thereby reducing its weight by half to facilitate transport. Power will be obtained from Hirakud, while coal will be got from Rampur, near Belpahar.

Imported raw materials for the iron and steel plants of Jamshedpur will initially include fluorspar, spelter, sulphur, and certain ferro-alloys. With a view, eventually, to producing spelter indigenously, recommendations have been submitted to the government, at the instance of the Council of Scientific and Industrial Research, for the exploitation of the Zawar mines in Rajasthan. There are also possibilities of obtaining sulphur from pyrites deposits in Bihar and elsewhere.



Tin Mining in Vietnam

TIN production in Indo-China was never very considerable. In the peak year of 1935 it was of the order of 580 tons. The main reasons for this would seem to have been, in the first place, that the deposits are in the mountains of the Cao Bang Province, almost on the borders of China, from which transport to the coast was extremely difficult; and in the second place, that during the last years of the French occupation, Cao Bang Province was, for all practical purposes, held and administered by the Vietnamese National Liberation Movement.

Exploitation was conducted in a dozen places, but the only important mine was that at Tinh Tuc, where there was for some time a refinery which handled the ore from all other mines as well. In 1920, however, for some reason which it is impossible now to discover, this refinery was closed down, and thereafter the ore was sent, after dressing locally, to Singapore for refining. The difficulty and cost

of transporting this ore by road, through extremely rough mountainous country, to the port of shipment at Haiphong must have been almost prohibitive. During the eight years of war from 1946 to 1954, work at the tin mines came to a standstill.

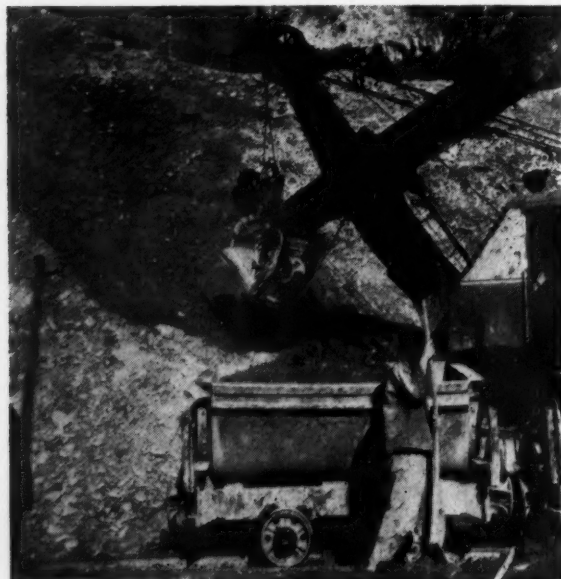
Since then the Vietnam Government, with Soviet technical help and equipment, has opened up the Tinh Tuc mine again and is operating it under modern conditions. The mine is now completely mechanized, the equipment being for the most part of Soviet origin, though some of the lorries come from the Tatra works in Czechoslovakia and some rolling stock is made in Vietnam.

Top soil and ore are dug by mechanical excavators, and loaded separately on to a light railway which carries the top soil to a ropeway which removes it off the site, and the ore to elevators which take it up to another light railway for transport to the refinery. Power is provided by a small hydro-electric station at the head of the valley in which the Tinh Tuc mine is situated.

The problem of labour has been difficult. It has been solved, however, and there are now some 2,500 workers at Tinh Tuc.

Output is still much below the 580 tons of the peak year (1935), but it is difficult to discover just where it stands—at Tinh Tuc, the writer was told that it was about 300 tons, but the planning office in Hanoi wrote this down to 200. There was agreement, however, that whatever the figure was for 1958 it would be at least doubled in 1959, which seems probable, and that thereafter it would increase in something like geometric progression, for the refinery is capable of handling about ten times as much ore as it was handling last December, and is clearly not intended to work only once a month, as it was then doing. It seems probable, moreover, that the other dozen mines in the neighbourhood will be brought back into production in the near future, while there are circumstantial reports of very large new deposits of tin having been located by the Soviet prospectors who have been carrying out the first scientific geological survey of Vietnam, and by the 18 working teams of 2,800 Vietnamese geologists whom they have trained to complete the job.

Illustrations show the Tinh Tuc mine and an excavator operating there.



Stilfontein's Friction Winder

CAPABLE, in full operation, of hoisting 6,000 tons of rock a day, South Africa's first Koepe friction winder is being commissioned at Stilfontein G.M. in the Klerksdorp district. Manufactured in the Union by Vecor to General Electric Co., of England designs, the friction hoist itself is a 4,300 h.p. geared a.c. winder hoisting two 15-ton payload bottom discharge skips at 2,800 ft. per min. to a depth of 4,800 ft. The winding cycle is 130 sec. for approximately 400 tons per hour.

Weighing 60 tons, the Koepe friction wheel is 17 ft. 6 in. in diameter over rope treads, with rope centres at 16 in., and 20 ft. diameter over brake paths. It is fitted with P.V.C. and cotton treads giving coefficients of 0.2 to 0.45. The main bearings are 710 mm. SKF barrel roller type, while the pinion bearings are 280 mm. SKF barrel roller type. The four winding ropes are each of 1½ in. diameter flattened strand, while the four balance, or tail ropes, are each of 1½ in. diameter galvanized non-spin type. Twin 2,150 h.p. a.c. motors, operating through single 7.15:1 ratio reduction gearing give a Koepe wheel speed of 51 r.p.m.

Electrical equipment for the winder was supplied by Metropolitan Vickers, South Africa, for regenerative, reverse current, and compensated dynamic braking, and includes a creep connection device. A model C Lilly controller is provided for following up.

Loads for skip-hoisting are measured by ASEA measuring bins, the ore being discharged into the skip when the latter is in the loading position. When the skip is filled, the automatic charging apparatus withdraws and thereby actuates a switch which initiates the winding trip. The automatic control keeps the system in balance.

An air/oil rapid braking system makes possible reduced braking torque during full speed, the brakes being applied from a floating lever, on either end of which is a double-acting two-diameter piston-type pressure engine for normally applying the brakes and a weight-brake engine for emergency operation. For normal operation, the weight-engine remains "up" and its rod end acts as a pivot. An electronic control unit is provided for control of braking during deceleration and creep speeds.

Modifying the Margaret Shaft Headframe

To accommodate the new hoisting equipment, the existing Margaret Shaft headframe was modified by constructing a hoist chamber on the top of it. After the equipment had been placed in the hoist chamber, the multi-rope system had to be installed, and the method of doing this was described by Mr. K. Macmillan, resident engineer at Stilfontein G.M., at a meeting of the S.A. Institution of Mechanical Engineers.

To obtain a true 1½ in. semi-circular cross-section of the Koepe wheel rope treads, a 6 in. lathe bed, cut off at the headstock end, was mounted under the wheel on steel support brackets and a forming tool used. This gear has been left for the future machining of treads when the ropes are on. The brake paths were also ground.

Since the failure of the single shaft, from which all the safety devices and automatic control mechanisms are driven, could be disastrous, two sets of magnetic switches in the compartments, 200 ft. and 240 ft. down, have been installed. These operate in conjunction with cams on the

Lilly controllers, which must normally coincide at these points.

To lower the Koepe winder ropes, an existing 1,000 h.p. double drum Markham hoist with drums able to take 11,000 ft. of 1½ in. rope and a winding speed of 1,500 ft./min. was used, the 1½ in. ropes being doubled down to reduce load and speed of hoisting.

Installing the Ropes

The first step involved in installing the ropes was the landing of the north skip bridles with attachments and guide rollers in the headgear tip and the south skip bridle at the loading flask level. Each bridle was landed on temporary steel bearers and lashed down to prevent upward movement. The eight Koepe ropes themselves were supplied mounted on specially made steel reels for lowering with the reels to the bottom of the shaft.

It was necessary to install a main rope first, the reserve rope being coiled on to the magazine reel. This portion was required later to pull up around the Koepe reel and attach to the other skip. The total weight of the main rope and appurtenances was about 19 tons, giving a safety factor of 7.8 at the bank and 4.5 at the bottom for the two 1½ in. ropes, including their own weight.

Having been lowered to a level 15 ft. higher than the south skip bridle at the loading boxes, the main rope reel carriage was landed on bearers and left there, while the magazine crosshead was pulled up to the surface, together with the top end of the main rope held by two Reliance gland-type clamps. At the surface, the reserve rope on the magazine crosshead was run off and pulled up around the Koepe sheave and down on to the south skip to be made off on its ASEA cappel.

Similar methods were used for installing the tail rope, and since this brought 14 tons weight to bear on the top skip, a second main rope was then installed to bring the system back into balance, and this procedure was continued until all the ropes were installed, whereupon the installation gear and 1½ in. ropes were removed.

When released from their clamps, the main ropes were found to contain very little spin, and the ends were finally made off into their respective ASEA capps above the lower skip, from the underside of which the bearers were then removed. The top skip bearers were then removed and the skip buckets swung into place into the bridles at bank level.

To take up initial rope stretch at the shaft bottom, the lower skip was landed on bearers and the main ropes pulled through the ASEA capps. Because the centre steel cores of the non-spin tail ropes had slipped down inside the outer strands held by the Reliance capps, by as much as ½ in. in some cases, metal cap sockets are to be fitted.

Before timbermen were allowed to use the skips, a trial test was successfully carried out, though some bird-caging

by the tail ropes was experienced on the first downward run of the top skip. After this had been dealt with, there was little trouble apart from a tendency of the tail ropes to twist into a loop.

To change the bridles, the skip bucket will be removed and the shaft collar spanned with bearers to support four gland-type suspension clamps. These will be attached to the cleaned tail ropes, leaving about 8 ft. of rope up to the Reliance cappel, stocks being fixed around the top of the tail ropes to prevent them from flopping over. The adjacent shaft collar will then be spanned with bearers to support four gland clamps for the main ropes, which will be fixed after the ropes have been cleaned. The bridle-changing rope will then be lowered from a 10-ton winch, attached to the bridle so as to take the strain. Enough slack to remove the attachment pins will be obtained by jacking up the bearers on the adjacent side. The slack will then be pulled up with the Koepe hoist, the pins removed, and the bridle lowered out, taking care not to damage the rope stalks in the stocks.

For installing the spare bridle, the process will be reversed.

When the main ropes have to be changed, all must be done at the same time to avoid stretch difficulties. For the first change at Stilfontein, all the new ropes will be mounted on the available steel reels. Both buckets will be removed and the south bridle brought to the bank, a light crosshead being installed just above and clamped to the first rope to be changed. While this is being done, the north service hoist drum, fitted with a 1½ in. diameter rope, will be used with an 8 ft. sheave, a crosshead and 3-ton weight, to assist balance.

The north skip will be brought to the bank and a sectional timber stairway installed as it is lowered till the

top of the skip is 45 ft. below bank level. By then, the south skip will be at 16 Belt Station with ASEA cappel at the station footwall. The next step will be to insert bearers across the bank in the south compartment, fit a gland clamp to the first rope, block the equalizing gear, and release this rope from the lower skip. The Koepe sheave will then be moved until the gland clamp takes the weight of the rope to give slack above the upper skip on this rope, the end of which will be released. The top end of this main rope will then be winch-hauled clear of the Koepe sheave, over the south 8 ft. sheaves and across to the south service hoist drum, by means of which it will subsequently be run off on to the bank and coiled after the gland clamp has been removed.

To install the new ropes, this process will be reversed.

The installation, at a cost of £20,000, of a specially designed double-drum 100 h.p. rope-changing winch is being considered.

Since variation in stretch will not affect operations, the tail ropes can be changed one at a time. A full reel will be lowered inside the skip bridle from which the bucket has been removed, and changing will take place inside a special chamber just above loading flask level. After the full reel has been mounted on a trestle, one tail rope will be detached from below the skip and attached to an empty chain-driven reel in the chamber and wound in. After the end of the new rope has been fitted with a cappel and attached below the skip bridle, the Koepe winder will be started. As the lower skip rises, it will haul up the new rope, while the old rope is wound in and on to the empty reel, thus keeping the system in balance. At the end of the trip, the old rope cappel will be removed and a spare cappel mounted to the new rope and to the other skip, which will then have arrived at the bottom.

Malayan Diary

IN the first three months of 1959, the mines of the Federation of Malaya produced 187,404 piculs of tin concentrates compared with 185,528 piculs in the preceding three months.

The Department of Mines reports production in piculs of tin concentrates, by methods, as:

	January	February	March
Dredges			
Operating Units	41	40	34
Production	33,742	31,838	33,362
Gravel Pumping			
Operating Units	314	303	331
Production	25,100	17,857	21,926
Hydraulic			
Operating Units	7	6	6
Production	1,751	1,446	1,081
Open-Cast			
Operating Units	2	2	1
Production	1,979	625	820
Underground			
Operating Units	17	15	17
Production	3,417	3,012	2,858
Other Mines			
Operating Units	23	20	19
Production	813	512	668
Retreatment	212	472	354
Dulang Washing	1,189	1,189	1,181
Production, all methods ...	68,203	56,951	62,250

Concentrates weighing 165,778 piculs, with an assayed tin metal content of 7,458.50 tons, were delivered to the smelters, compared with 168,997 piculs with a tin content of 7,608.60 tons in the preceding three months,

Mine stocks of concentrates increased from 159,590 piculs at December 31, 1958, to 182,315 piculs at March 31, 1959.

The labour employed in the tin mines decreased over the same period from 23,153 to 21,404. The number employed immediately prior to the start of tin restriction on December 15, 1957, was 37,171.

The output of coal by Malayan Collieries Ltd. in the quarter was 19,409 tons, compared with 13,654 tons in the last quarter of 1958. The increase was due to a bigger demand by Malayan Cement Ltd. on bringing a second kiln into operation.

Raub Australian Gold Mining Co. Ltd. also improved its output to 8,887 troy oz. compared with 7,484 troy oz.

Iron ore production fell to 628,942 tons for the three months, against 655,728 tons for the previous three months, and ilmenite exports dropped from 22,811 tons to 10,966 tons.

The Rompin Mining Co. is reported to have obtained subscriptions for a substantial part of the \$M93,000,000 capital required for development and construction work on its proposed iron ore mine in Pahang. The mine, when ready for production about 1964, will be the most modern undertaking of its kind in the Far East, with its own railway to the coast and its own wharf. Directors of the company are now in the United States for the purpose of negotiating a \$M30,000,000 loan from the American Development Corporation. The annual production capacity of the mine is estimated at 2,000,000 tons of ore.

Machinery and Equipment

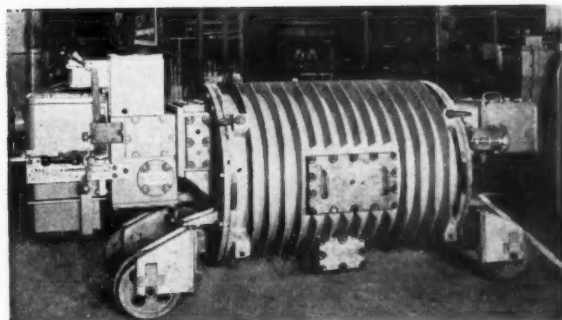
Improving Coal Production Economy

Far from supporting the somewhat pessimistic feeling aroused by recent major economic changes in the coal-mining industry, leading manufacturers of mining apparatus have responded by renewed research for the production of better and more efficient equipment. One such example is the new 300 kVA, 3-phase 3,300/565 volt mobile transformer sub-station specially designed for use in gaseous coal mines, and manufactured by the Brush Electrical Engineering Co. Ltd., a member of Hawker Siddeley Industries. It is the first wholly British flameproof dry-type transformer produced, and has been granted an approval certificate for use in methane-affected areas by the Safety in Mines Research Establishment at Buxton. At the 8th Electrical Engineers Exhibition, March 17 to 21, 1959, this equipment was awarded the silver plaque for the most outstanding industrial equipment exhibit.

An asset of the sub-station is that it can be located adjacent to the working coal face instead of having to conform to the regulation 300 yd. minimum proximity distance stipulated for the non-flameproof type of unit. Where several faces are being worked concurrently in the locality, this distance is much greater, as it must be measured from the nearest working point, and not from the site to be supplied. The immediate result of being able to position the transformer sub-station close to the coal-cutting machinery is that the connecting cables are short and the sharp drop in working voltage caused when heavy starting loads are applied is reduced considerably, thus avoiding the costly and relatively frequent motor burn-outs so often experienced.

When operating at its continuous maximum rating (C.M.R.) in an ambient temperature not exceeding 25 deg. C., the transformer requires 36 hours to attain steady temperature conditions. Under the cyclic loading conditions encountered in shift work, overloads as high as 150 per cent full load can be sustained for considerable periods. The maximum case temperature is below that of the conventional oil-filled transformer. Furthermore, the additional drop in temperature which takes place across the cooling fins acts as a safeguard against personnel suffering burn discomfort through accidental contact. Apart from its flameproof qualities, the transformer is built to operate at high internal temperatures without recourse to oil as a cooling and insulating medium. This has been done by employing Class C insulation, con-

The first wholly British air-cooled flameproof mobile transformer sub-station for use in gaseous mines



forming to the requirements of British Standard No. 2757/1956.

General overall dimensions of the transformer are: length, 9 ft. 3 in.; width, 3 ft. 3 in.; height, minimum 3 ft. 10 in. with 1 in. ground clearance, and maximum 4 ft. 2 in. (5 in. clearance).

TWO NEW PUMPS

Two new pumps have been announced by Armstrong Whitworth and Co. (Power Tools) Ltd. The Thor 275 model



W363 sludge pump is self-priming and can handle water containing sand and rock cuttings, and is used for all types of mining, quarrying, and general construction work. Employing the Venturi principle, water is drawn through the inlet valve and the float valve automatically shuts off when the tank is full, admitting

pressure air which discharges water through the outlet valve, creating a breathing action.

The pump has an output varying between 36 g.p.m. on a 175 ft. head and 72 g.p.m. on a 65 ft. head when working with no suction lift on an air pressure of 90 lb./sq. in., it can produce a maximum suction lift of 20 ft. at this air pressure.

The size 51-T is a small lightweight sump pump for heads up to 40 ft. A new built-in muffler reduces exhaust noise by one-third with little back pressure on the motor. Its output varies between 180 g.p.m. at a 10 ft. head with an air pressure of 100 lb./sq. in. and 63 g.p.m. at a 40 ft. head with air pressure 70 lb./sq. in.

The pump, which weighs 35½ lb., is 15½ in. long (without exhaust pipe) and will pass through an opening 8½ in. by 10½ in. It has a nickel cast-iron impeller, cast-iron housing, and ductile iron bottom plate and strainer; its four-blade rotary air motor uses less than 50 c.f.m. under maximum pumping conditions. The size of the discharge opening is 2½ in. male B.S.P. thread, the air inlet is ½ in. male B.S.P., and the minimum water-pumping level is 1½ in.

FLAMEPROOF VIBRATORS

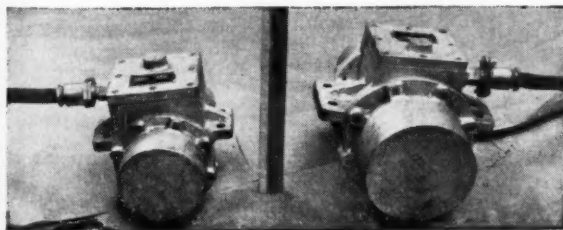
Recently announced by Blending Machine Co. Ltd. is a complete range of rotary-type flameproof vibrator units. These vibrators conform to B.S.S. 229: 1957 with respect to the inflammable gases and vapours (group 1 and 2).

The units are equal in efficiency and performance to those produced already in the standard range, and it is felt that the flameproof units will be welcomed by the chemical, coal, and other industries faced with the problem in flame-restricted areas which can be resolved by the use of vibration. Like the standard units, the flameproof vibrators have been designed and made suitable for fitment to hoppers, chutes, trunking screens, compacting tables, etc., and can, in fact, be employed in most places where powerful, smooth vibration is required.

U.K. ACCESSORY FOR U.S. EXHIBITION

The introduction to the American market of a new pumping accessory, the Dolphin floating suction strainer, at the Cleveland Coal Show is being accomplished by Megator Pumps and Compressors Ltd.

The company's American subsidiary, Megator Pumps and Compressors Inc. of Pittsburgh, Pa., is showing a range of mining pumps and equipment produced by the parent company at this exhibition.



Above, in centre of page, the 51-T utility sump pump by Armstrong Whitworth and Co. (Pneumatic Tools) Ltd. Alongside, at left, are the 250 watt and 800 watt flameproof units manufactured by Blending Machines Co. Ltd.

MINING

MISCELLANY

The Kermac Nuclear Fuels Corporation has started production of sulphuric acid at its new 400-ton per day acid plant north of Grants, New Mexico, United States. The \$1,500,000 plant, built by the Western-Knapp Engineering Co., is an integral part of Kermac's uranium mill at Ambrosia Lake. The new plant was designed to produce 400 tons of sulphuric acid per day, which is used in the mill's acid leach circuit. A maze of electrical circuits so carefully control plant operations, that only two men are required to operate the entire plant. A giant electrical control panel in the heart of the plant shows the operators how the many simultaneous operations in the plant are progressing.

Societa Monte Amiata, Italy's leading quicksilver producer, is to dismiss 700 workers and 35 white-collar employees on May 15 from the Abbadia San Salvatore mine. Announcing this, the company said the decision was due to the serious contraction in quicksilver sales in the past two years.

An atomic generator developed for use as an auxiliary power source for space vehicles, which was hailed as a major achievement by Atomic Energy Commission officials, is described in an article in the latest issue of *Lead*, quarterly publication of the Lead Industries Association. The code name for the generator

is SNAP II, derived from "System for Nuclear Auxiliary Power". It utilizes lead telluride thermoelectric elements for the production of electricity from heat supplied by the isotope, Polonium 210.

In 1958, 4.4 per cent more bauxite was mined than in 1957 (299,000 against 261,000), but there was a 3.2 per cent drop in the amount of aluminium produced during the year (64,000 tons against 66,000 tons).

A deposit of the mineral fluorspar has been discovered in the Burren range, on the borders of counties Galway and Clare in Eire. Test borings are at present being carried out by Messrs. John Sisk and Sons Ltd., of Dublin, and reports state that an initial test assayed the mineral as 98 per cent pure.

Possibilities of "further interesting developments" in mineral exploitation of the eastern province of Northern Rhodesia are predicted in the annual report of the Department of Geological Survey published here. Sizeable deposits of metallic sulphides and numerous occurrences of graphite have been found in the Petauke area.

The M. A. Hanna Co. started commercial production recently at its new mine beneficiation plant at Iron Moun-

tain, Michigan, United States. The plant extracts and concentrates iron from low-grade ore. It was the first time in 14 years that a mining operation has been active at Iron Mountain. The first shipment of 65 per cent cast-iron concentrate went to the Granite City Steel Co., in Illinois.

The Diamond Mining and Utility Company (South-West Africa) Ltd. have ceded to a Canadian corporation rights to prospect for oil and gas in two concession areas on the South-West African coast.

During 1958, production of iron ore in Venezuela was 15,400,000 tonnes, an increase of 146,776 tons over 1957.

King Island Scheelite is to spend £A10,000 over 12 months, in prospecting by drilling and sampling areas in New Guinea held under option by Australian Gold Development. If further testing is justified, the company will spend £A25,000 more by April 30, 1961, on additional work. Object of initial testing is to obtain a reliable estimate of the average gold content and dimensions of the accessible part of the Mount Victor orebody.

The largest number of delegates ever to attend a post-war national conference on industrial safety gathered in Scarborough during the week-end of May 8 to May 10, for the National Industrial Safety Conference organized by the Royal Society for the Prevention of Accidents. Over fifty firms supplying such industrial safety equipment as clothing, machine guards, barrier creams and skin cleansers exhibited their products in the display of industrial safety equipment.

Since the publication of our note in last week's issue, it has been reported that the Australian Federal Government will introduce legislation to increase assistance to the Australian gold mining industry. The legislation will increase subsidies to both large and small producers. The present subsidies expire on June 30. Mr. Harold Holt, the Federal Treasurer, has said that the major subsidy would be increased from 55s. to 65s. per oz., and the flat rate payable to small producers from 40s. to 48s. per oz.

At the 11th Liège International Fair, which was held from April 25 to May 10, owing to the breakdown of negotiations for the creation of a Free Trade Area, and at the same time the formation and inception of a European Common Market, British goods were not so well represented in Liège as in 1958. However, the following British manufacturers of mining equipment exhibited: British Belting and Asbestos Ltd.; Compression Ignition Ltd.; Hagco-Sheepbridge Ltd.; Murex Ltd.; Oldnam and Son Ltd.; and Rip Bits Ltd.

Mr. G. V. Sims, managing director of British Oil Equipment Credits Ltd., the newly-formed subsidiary of the Council of British Manufacturers of Petroleum Equipment, advises from Mexico that he has successfully negotiated an agreement with Petroleos Mexicanos (PEMEX). The agreement is for the supply of £3,500,000 worth of petroleum equipment in connection with the new extension to the Minatitlan Refinery in Mexico. PEMEX is shortly opening an office in London, under the direction of Senor Ingeniero Alejandro Torres.

The Belgian Solid Fuel Council (CEDOCOS) had a working model of a coal mine on show at the 11th Liège International Fair



PERSONAL

Mr. G. R. Fisher, member I.M.M., is awarded the Australasian Institute of Mining and Metallurgy Gold Medal for 1958 "in recognition of his services to the base metal industries of Australia, and in particular to the growth of the Mount Isa mineral field and integrated industries". The medal will be presented to Mr. Fisher at the annual meeting of the Institute at the end of May.

It is with the deepest regret we have to advise of the death on May 11 of the chairman and managing director of Cable Belt Ltd., Mr. S. Hunter Gordon, J.P., A.M.I.N.A.

The National Coal Board announce the appointment of Dr. D. C. Rhys Jones, at present deputy-director of their Coal Research Establishment at Stoke Orchard, near Cheltenham, as director of the Establishment. He succeeds Dr. J. Bronowski, who last month was appointed director-general of the Board's new Process Development Department.

At a recent meeting of the Council of the London Chamber of Commerce, Mr. A. L. Stock was re-elected chairman, Mr. R. L. Wills, M.C., deputy-chairman, and Mr. F. H. Tate, treasurer.

MEMORIAL AT LUSAKA

The British South Africa Co. announces that, with the permission of the Watts Trustees and of the Rhodes Trust, it has arranged for a replica to be made of the bronze equestrian statue, "Physical Energy", designed by G. F. Watts, R.A., which forms part of the Rhodes Memorial at Groote Schuur.

The company has offered to present this replica to the Municipality of Lusaka in Northern Rhodesia, as a memorial to the founder of Rhodesia, and the Mayor and Council of Lusaka have accepted the offer.

It is proposed that the statue should be sited on one of the roundabouts at the junction of King George Avenue and the Ridgeway, with a background of the new High Court and Charter House, and in such a position that it will be seen by all who approach the capital from the direction of the Great North Road.

The stone plinth and surrounds of the statue will be designed by Mr. J. A. Hoogterp, F.R.I.B.A., to whom Lusaka owes the designs of many of its buildings. It is expected that the memorial will be completed and ready for unveiling by May, 1960.

Coming Events

The 50th birthday of Philipp and Lion is being celebrated by a reception in the River Room of the Savoy, on June 11. The present activities of the firm embrace not only non-ferrous scrap, but virgin metals, metallic ores and ferrous scrap, both internally in the United Kingdom, and for export and import to, and from, all parts of the world.

The DECHEMA annual meeting, being the nineteenth meeting of the European Federation of Chemical Engineering, will take place at Frankfurt-am-Main on May 21 and 22, 1959. Though the closing date for registration was May 1, late applications can be considered by DECHEMA, Frankfurt (Main) 7, Postfach, Germany.

Metals and Minerals

U.S. Aluminium Industry Hopes for a Record Year

Prospects for the aluminium industry in the United States are considered to have brightened considerably, demand for the lightweight metal having apparently resumed its long-term growth trend, temporarily interrupted by the 1957-58 recession in American industry. Production of refined aluminium by United States aluminium producers in the first three months of 1959 reached the record quarterly total of 456,013 s.tons, compared with 395,909 tons in the same quarter of 1958, and with the previous quarterly record of 442,597 tons in the first quarter of 1956.

The United States aluminium industry not only anticipates a much better year than last, but believes that demand might well be close to previous peaks or might even surpass them. The value of sales by the three major aluminium companies for the first quarter of the current year reached a combined total of \$393,000,000, representing an increase of more than 31 per cent over sales in the first quarter of 1958, which amounted to about \$297,000,000. It now seems probable that shipments for the first half of 1959 may be some 40 per cent higher than the total for January to June, 1958.

Particularly significant, as *The American Metal Market* points out, is the fact that virtually all the first quarter, 1959, sales are accounted for by commercial procurement. A considerable tonnage of government sales was included in the returns for the first quarter of 1958. Furthermore, the current sales appear to be based on firm requirements, rather than any artificial demand stemming from such factors as hedge-buying, as has been the case with some other metals, notably steel.

The question of prices after the present industry "freeze" expires on June 30 (or after the expiration of a new labour contract) remains unresolved, but it is considered that the chances of any price decrease can virtually be ruled out, particularly having regard to the high cost of research, market development, and promotion. On the other hand, wage and price increases could have the effect of postponing the penetration of new markets, as well as pricing aluminium out of some existing markets. Higher prices could also open the door further to imports of aluminium from low-cost sources outside North America.

Anaconda Aluminium Co. has already signed a new labour agreement at its Columbia Falls, Montana, reduction plant, granting some 400 employees an average hourly wage increase of 8.23 c. The new contract is effective from May 1 and expires on October 31, 1960. The wage increase ranges from 6 c. an hour for bottom scale workers, who receive \$2.16 an hour under the former contract to 10½ c. per hour for top-rated employees, who had received \$2.96 per hour.

Meanwhile, Reynolds Metal has announced its intention of raising primary aluminium metal production by about 30,000 tons a year, bringing output up to an annual rate of 559,000 tons a year, equal to roughly 93 per cent of capacity. Present capacity is 601,000 tons annually.

The additional metal is required to meet present market demands for pig and ingot. Reynolds is restarting one potline at its Listerhill, Alabama, plant and about three-quarters of a line at its Jones Mill, Arkansas, plant. These potlines were closed down last September. Another 100,000 tons will be added to the company's capacity by the end of the year with the completion of the company's Massena, New York, reduction plant. The first potline at Massena is expected to be started in July.

Alcoa is stepping up its production of primary metal by 40,000 tons a year. This will be done by reactivation of two idle potlines, one at Point Comfort, Texas, and the other at Vancouver, Washington.

On the other hand, Alcan recently announced that, in order to bring production more closely into line with sales and to prevent further increase in inventories, a reduction of about 5 per cent in the operating rates of its smelters would be made early in May. Canadian primary production for 1959 is expected to be around 600,000 tons, at which level it would be only slightly lower than the 1958 output of some 630,000 tons. The present schedule provides for a production of 500,000 tons by Alcan and up to 90,000 tons by Canadian British.

A/S Aardal and Sunndal Verk, Norway's largest aluminium producer, broke all previous records in 1958 with an output of 71,540 tons of aluminium metal. Like other aluminium producers, the company had to cut its prices to meet fierce competition, but managed to sell all of its increased output. Annual output capacity at the Aardal smelter is being gradually increased from nearly 30,000 tonnes at present to 64,000 tonnes by the end of 1961. Plans are being made to expand capacity further—by an additional 32,000 tons—by 1963-65. The Sunndalsra plant is also being expanded and capacity will rise this year by 10,000 tonnes to 50,000 tonnes annually. The next expansion stage will increase yearly capacity by a further 25,000 to 30,000 tonnes, bringing it to 75,000 to 80,000 tonnes.

The annual report of Aluminium-Industrie-Aktien-Gesellschaft Chippis states that the company's output of aluminium, not counting that of Mosjoen Aluminium A/S, did not quite reach the total of the previous year. This slight setback was due to a reduction of 30 per cent in the output of the Rheinfelden works during the last three months of the year. The three other plants for which sufficient hydroelectric power was available operated to full capacity. On the whole, the company's plants manufacturing semi-finished products increased their output.

WOLFRAM AGAIN IMPROVES

The upward movement in wolfram ore shipments prices persists. On May 11, dealers indicated 92s. 6d. to 97s. 6d. per

1 ton unit c.i.f. Europe for minimum 65 per cent material, a rise of 2s. 6d. During the past fortnight, prices have risen by 8s. 6d.

OUTLOOK FOR MANGANESE

In his review of the past year's operations, the chairman of Associated Manganese Mines of South Africa Ltd. refers to the falling off in the demand for manganese ore and the decline in the price, which was attributed to the steel industry having accumulated large stocks and curtailed steel production. Although as yet there has been no appreciable improvement in the demand and prices for manganese ore, the present rate of

the steel industry is regarded as an encouraging factor in the outlook.

During the year the company's shipments to overseas consumers decreased by about 20 per cent, as compared with 1957. A pleasing feature of the year's operations was the improvement achieved in the handling of the company's traffic by the South African Railways.

Associated Manganese is to supply Feralloys Ltd. with its total requirements of manganese ore, the bulk of which will be supplied from the new mines, Devon and Adams. Feralloys Ltd. has made good progress in the installation of the ferro-manganese furnaces at Cato Ridge, and production at this £12,000,000 plant is expected to commence during the latter part of this year.

COPPER • TIN • LEAD • ZINC

(From Our London Metal Exchange Correspondent)

During the past week business has become somewhat brisker in spite of the approach of the Whitsun holidays, and the opinion is gaining ground that prices of all the four metals dealt in on the Exchange may show rises during June. Very few people, however, express much confidence in metal prices for the third quarter of the year.

MYSTERY OF THE MISSING COPPER SCRAP

The copper market has remained relatively featureless, with price changes either non-existent or of a very small magnitude. Reports of consumption from various countries differ, but it seems that in the United States actual consumption is good, whilst the actual off-take of copper from producers is swollen by the fears of a mid-year strike. In Europe and the United Kingdom, consumption remains at a high level for ordinary industrial uses, but, of course, the actual tonnage consumed is somewhat lower than at the same time last year, as then there were numerous orders from Russia for rod and wire. It appears that hopes have almost vanished for a repetition of these Russian orders, but it is just possible that when the present Russian buying in the rubber market comes to an end, orders may be given for copper rod and wire.

One of the interesting features of the present situation throughout the world is the relatively small amount of scrap which is coming on to the market, and although to some extent this can be explained by the industrial recession of last year and early this year, this does not give a complete answer and much mystery surrounds the other causes. Prices in London have fluctuated slightly, but any downward movement has met with reasonably solid resistance, and it would appear that "bulls" are prepared to take small, quick profits, whilst "bears" are not prepared to operate in the existing circumstances. Stocks in official warehouses showed an increase of 175 tons to a total of 10,916 tons, and the contango has showed some slight tendency to decrease. In the United States, the main producers have opened their books for June, and report that there is still a demand for more tonnage than they could supply. Customs smelt-

ers have maintained their price at 32 c. per lb, but report that they have little tonnage to offer owing to the difficulties in obtaining sufficient scrap.

The Copper Institute's figures for April (all in s.tons) show that in the United States production of refined copper fell to 137,490 tons from 140,928 in March. Deliveries to domestic consumers rose to 135,233 tons from 124,220 in March, while stocks fell to 74,323 tons from 82,952. Outside America, production declined to 141,469 tons against 144,497; deliveries were also lower at 135,029 tons against 146,548 (revised) while stocks rose to 255,548 tons from 236,789.

TIN TRENDING HIGHER

The tin market shows signs of advancing, although the majority opinion is that at its next meeting in Copenhagen at the end of this month the International Tin Council will agree on a further increase in the export quota. Stocks in official warehouses show an increase of 7 tons at 8,522. It is noted with interest that this is the first time for many weeks that a decline has not been reported; it may indicate that sales by the buffer stock manager direct to American consumers have come to an end and that sales are now being made on the London market. Alternatively, it can be that exports have been masked by the placing of additional metal in official warehouses to meet sales on the Exchange. On Thursday morning, the Eastern price was equivalent to £812 per ton c.i.f. Europe.

HOW FAR WILL CUTS STRENGTHEN LEAD-ZINC?

The main news of the week concerned the lead and zinc markets, as at the end of last week the meeting in New York of the Lead and Zinc Committee of U.N.E.S.C.O. issued a communiqué on its deliberations. It is apparent that producer nations participating in the conference had no liking for additional government interference in the lead and zinc trades, and that to save themselves private agreements were made to cut back production and sales, and prior to and during the conference a number of such reductions were announced. At the end of the meeting, it was announced that the cuts so declared would reduce

the supply of lead and zinc metal in the second half of 1959 by 45,500 tonnes and 52,000 tonnes respectively, and that it was probable that this figure would be increased as other countries examined the question with the industries concerned in the light of the example given. It was reported that, assuming consumption remained at the expected level, then the excess supply of new lead would be in the neighbourhood of 30,000 tonnes for the last six months of the year and that for zinc only 8,000 tonnes.

In trying to build up a picture, however, it must be remembered that the visible stocks of lead and zinc are both increasing, and will continue to do so fairly rapidly for at least this month and next, and that thereafter there will be a surplus, however slight. It is, therefore, to be supposed that markets will certainly not strengthen, unless, of course, consumer demand increases more rapidly than is expected.

In the case of zinc, the expected addition to stocks is so small that this is unlikely to have any material effect on prices, and with demand from both the building and motor industries becoming better, there seems a possibility that prices may, in fact, rise. For lead, however, the outlook remains gloomy, as it is hard to see consumption increasing more than expected. In any case, the estimated excess production is very much larger than in the case of zinc. It must not be lost sight of that, while the price of zinc in Europe stands above that of lead, in the United States the position is reversed and all pronouncements on acceptable minimum prices show the desire for the lead price to be substantially higher than that of zinc.

Price movements during the week have been favourable for zinc, but early firmness in lead was soon lost, although in the United States an increase in the price from 11½ c. per lb. to 12 c. per lb. New York has been held. The strength of the zinc market in Europe may indicate a nominal rise in the quotation in America, more especially so as the Canadians have already made a ½ c. per lb. increase.

The latest figures issued by the Bureau of Mines show that in the United States domestic production and imports of lead during February totalled 87,300 s.tons, against a consumption of 84,200 s.tons. Primary refiners' stocks rose by some 6,000 s.tons, giving a total of 20,300 s.tons at the end of February, but this was offset to some extent by stocks of lead of consumer and secondary smelters falling by about 4,000 tons during the same period.

Closing prices are as follows:

	May 7		May 14	
	Buyers	Sellers	Buyers	Sellers
COPPER				
Cash ..	£233½	£234	£233½	£233½
Three months ..	£235½	£235½	£234½	£234½
Settlement ..	£234		£233½	
Week's turnover	8,175 tons		9,225 tons	
LEAD				
Current ½ month	£70½	£70½	£71	£71½
Three months ..	£71½	£71½	£72	£72½
Week's turnover	7,200 tons		15,375 tons	
TIN				
Cash ..	£783½	£784	£784	£784½
Three months ..	£784½	£785	£784½	£785½
Settlement ..	£784		£784½	
Week's turnover	895 tons		780 tons	
ZINC				
Current ½ month	£75½	£76	£77½	£77½
Three months ..	£74½	£74½	£75½	£76
Week's turnover	7,575 tons		6,900 tons	

London Metal and Ore Prices appear on inside back cover.

Mining Finance

South African Gold and Coal

In 1957 African and European Investment in which Anglo American Corporation now owns 87 per cent of the equity had to devote £70,686 of its earnings to writing down its investments. Last year it turned this debit item into a credit of £110,357 being the surplus on realization of investments less amounts written off. This largely accounts for the rise from £1,377,673 to £1,630,421 in last year's gross consolidated profit on which tax was no more than £67,102, leaving a distributable balance of £1,458,319 after allowing for the Preference dividend. As announced in March, the board took the conservative course of maintaining the payment on the 10s. Ordinary stock units at 4s. which allowed the appropriation of £500,000 to general reserve and a rise in the carry forward from £175,176 to £297,495. Playing a part in this decision was presumably the fact that Anglo American, which had a bumper year in 1958, was not in particular need for anything extra from its new subsidiary, control of which was obtained at the end of 1957.

Nothing is said in the African and European report as to whether any of its share sale profits last year came from participation in the big Anglo American deal with the new U.S. gold share trust, American-South African Investment, but it is fair to presume that they did not. It is stated, for instance, that the stake in President Brand and Steyn was actually increased during the year owing to rights issues made by these O.F.S. gold producers.

Welkom is African and European's other main interest in this field and it is interesting to note that the chairman, Mr. T. Coulter, strikes a slightly encouraging note about this rather disappointing mine when he says there is evidence that the company is mastering the technical difficulties that have beset it and that the outlook "is one of cautious optimism as further development takes place, allowing expansion into hitherto unexplored areas of the property".

RIISING COAL SALES

The second main leg of African and European's spread of investments is South African coal both directly and also indirectly through its shareholdings in Vereeniging Estates, of which Mr. Coulter is also chairman. He is able to be quite optimistic about this industry because increasing demands of an expanding economy for power either through electricity or coal should ensure "a continued and steady, if not always spectacular, rise in coal sales". This refers, of course, to the home market where the threat from nuclear power generation is not regarded very seriously by Mr. Coulter in view of the extremely low pithead prices for coal in the Union.

Mr. Coulter, on the other hand, does not rate export prospects as being bright. The welcome increase in transport facilities offered by the South African Railways means that the export of Transvaal

and Natal coal now becomes a possibility again after a four-year blank. During this period the world coal situation has turned from one of shortage to abundance with, in addition, Poland, Communist China and Australia joining the list of coal exporters. South Africa's re-entry into the export market is thus likely to be "extremely difficult" in Mr. Coulter's view.

African and European's quoted investments of £7,644,841 had a market value of £17,909,637 on December 31 last. Taking this appreciation into account the company's consolidated net assets come out at just over £21,000,000, equal to 92s. per Ordinary stock unit after allowing for the Preference capital. Present price of African and European is 85s. to yield 4.7 per cent. With 87 per cent of them firmly in the hands of Anglo American the units are naturally rather a narrow market. They certainly offer growth prospects both through the gold and coal interests. The Government Price Controller authorized an increase in pithead coal prices as from October 31 last of 1s. 3d. per ton for Transvaal and O.F.S. coal and of 2s. 1d. for Natal coal, but it is pointed out that by the time this was granted, the first rise for two years, advancing costs had already eaten away part of the benefits. (Page 537.)

JULY 1 A KEY DATE FOR TIN

That leading authority on tin mining in the Far East, Sir Ewen Fergusson, had some interesting things to say about the present and future tin situation at the annual meeting of the Straits Trading Co. in Singapore. He thinks that the amount of metal held by the buffer stock manager under the International Tin Agreement may now have been reduced from around 30,000 tons to about 20,000 tons. He also suggests that if output control were to be maintained at its slightly increased June quarter rate then the stock might be liquidated altogether by the first half of next year. The Tin Council is, in fact, faced with a delicate task in deciding quotas for the remainder of 1959. There is no doubt that with the metal price behaving so well at above £780 a ton—the level at which the buffer stock manager may sell—the producers are looking for a further relaxation of restriction for the September quarter.

A complicating factor pointed out by Mr. Fergusson is that on July 1 next the Tin Scheme enters its final two-year period—it is due to expire on July 1, 1961—and that during this period the buffer stock can be liquidated at any price providing that it is not less than the floor level of £730. Important questions of policy will thus now start to be involved. Will the Council decide on total liquidation during the two years or will attempts be made to extend the present agreement beyond 1961? Mr. Fergusson asks.

It is to be hoped that the Council will put the lessening of output restriction first on their agenda, providing that this can be done while still enabling the

buffer stock to be gradually liquidated at something moderately in excess of £780. Providing that industrial activity in the consuming countries keeps up then there seems every chance that this objective can be accomplished. Meanwhile, tin shares remain firm enough. Their near-term course will depend largely on what decisions are come to at the Council meeting in Copenhagen later on this month. (Chairman's statement on page 539.)

WESTERN SELECTION

The Western Selection and Development Co.'s results for the year to last September were commented on here on April 24. As then stated, a return to the dividend list has been made with a payment of 8 per cent on the 5s. stock units for 1957-58. In the full report the balance sheet reflects the utilization of the share premium account of £501,728 in order to write down the value of investments, a move that has enabled dividends to be resumed. Thus, quoted investments now appear at only £492,071 against £952,572 a year previously while the market value at September 30 last was £818,796 compared with £581,970 in September, 1957.

The chairman, Mr. C. J. Burns, points out that the better profits last year reflected the improvement in the operating results for the company's Ghana investments and the recovery in stock market conditions generally and that no revenue has been yet drawn from the Canadian investments which are still in the development stage. The two chief prospects here are Genrico Nickel Mines and Cordoba Mines which is exploring for gold, but is also getting base metal indications in the Red Lake district which is an important Canadian gold area. Mr. Burns promises the latest information about these prospects at the meeting on May 28.

Mr. Burns once again expresses his well-known confidence in the future of British capital in Ghana and reveals that he has started negotiations, in conjunction with members of the Stock Exchange, with the Ghana Government with a view to setting up a form of Stock Exchange in that country. Western Selection 5s. units stand at 5s. 3d. ex dividend to yield 7.6 per cent on a payment that should be repeatable for the current year.

CHARTERED STARTS QUARTERLIES

The British South Africa Co. has made a welcome innovation. It is to publish each quarter its royalty income after providing for the Northern Rhodesia Government's 20 per cent participation. Gross revenue for the March quarter comes out at £2,500,000 compared with £1,464,000 for the same quarter a year ago when copper was below £180 a ton against between £220 and £257 in the first three months of 1959. Chartered's royalties, paid to them by Northern Rhodesia's base metal pro-

ducers, are based on a sliding scale that varies in accordance with the metal price.

For the first six months of its financial year to September 30 next royalties now total £3,989,000 against £3,163,000 for the same period of last year. If they are maintained during the next two quarters at the March period rate then the total for 1958-59 may reach the £9,000,000 neighbourhood compared with £6,100,000 for 1957-58 when there was also other revenue, including investment income, of £3,000,000. There should thus be little doubt about maintenance of the 5s. 3d. dividend rate. The 15s. stock units are 90s. Buyers at this level will no doubt be hoping that this is, in fact, very much of a minimum expectation.

MARKET HIGHLIGHTS

In spite of favourable Press comment on gold shares over the week-end, which it was thought, would lead to a fresh bout of activity, the Kaffir market has continued to drift. Prices have moved narrowly in a market characterized more by a lack of business than by any definite trend.

Against this background there have, nevertheless, been a few firm spots. On Monday, for example, Harmony hardened to 41s. 6d. and has since maintained that level. The early part of the week also saw some interest in the shares of the older Rand mines. East Rand Proprietary (44s. 9d.) put on 1s. 3d., while Geduld Proprietary, whose shares are backed by holdings in E. Geduld and Grootvlei, rose by 2s. 3d. to reach 67s., the highest this year. City Deep attracted buyers at 19s. 6d.

Ofsets were bought in advance of the annual report, and closed at 98s. after touching 98s. 3d., a new peak, while Stilfontein (41s. 6d.) put on 6d., the improvement being attributed to Continental support via Johannesburg.

The favourable prospects indicated by the African and European chairman resulted in an improvement of 2s. 6d. to 85s., but buyers were hard to find at this level. Free State Geduld was unwanted throughout the period, and closed 2s. lower at 175s. 7½d.

Coppers were also indecisive, although buyers were seen whenever shares showed signs of cheapening. Paris sales were the explanation for a decline in Chartered to 89s. 9d. Messina (109s. 4½d.) moved irregularly.

The market in lead-zincs was stimulated by the record output at Mount Isa. This issue was in strong demand, and rose in spurts to 39s., 2s. 6d. higher on balance. Consolidated Zinc was also firm and closed at 62s. 6d. after touching 62s. 9d.

The brightest of the mining markets was undoubtedly tin. Apart from a pause on Tuesday, eastern and Nigerian issues found buyers throughout and prices strengthened quite rapidly. Notably firm spots were Ipoh, 1s. up at 17s.; Malayan, 9d. up at 18s. 6d.; and Siamese, 6d. higher at 10s. 1½d.

Elsewhere, Ghana Main Reef (2s. 4½d.) were firm on the improved development results, while Selection Trust (111s. 3d.) improved sharply when the March quarter's high earnings were announced by American Metal Climax.

Rand and Orange Free State Returns for April

GOLD OUTPUT AND PROFIT

Company	April 1959				Current Financial Year				Last Financial Year			
	Tons (000)	Yield (oz.)	Profit† (£000)	Year ends	Tons (000)	Yield (oz.)	Profit† (£000)	Total to date	Tons (000)	Yield (oz.)	Profit† (£000)	Total to date
Gold Fields												
Doornfontein	92	37,881	187.1	J	882	366,354	1872.5	856	350,965	1947.8		
Libanon	101	24,104	54.0	J	983	232,821	536.8	1,108	229,518	534.1		
Luipaards Vlei	73	12,813	4.9	J	702	122,136	52.5	713	127,716	69.5		
Rietfontein	16	4,134	6.1	D	64	16,866	28.8	89	20,366	55.1		
Robinson	58	12,368	110.0	D	254	53,040	173.5	287	61,174	24.7		
Simmer & Jack	91	16,247	117.0	D	349	65,554	122.3	340	66,316	57.4		
Sub Nigel	66	15,830	23.0	J	659	158,660	242.2	658	165,943	272.7		
Venterspost	130	31,857	58.0	J	1,277	318,036	579.7	1,210	291,922	451.4		
Vlakfontein	51	18,358	85.9	D	199	71,612	337.2	196	69,079	333.2		
Vogels	96	21,293	38.0	D	372	84,007	163.4	383	86,518	179.6		
West Drie	92	84,654	691.3	J	830	784,819	6412.9	754	723,673	6003.3		
Anglo American												
Brakpan	136	16,976	11.6	D	543	65,670	39.7	485	66,604	45.8		
Daggas	244	49,373	240.0	D	943	192,186	968.2	884	186,085	959.0		
East Daggas	102	16,853	32.1	D	385	64,012	116.6	357	59,341	106.8		
F. S. Geduld	82	64,752	479.5	S	530	403,848	2953.9	450	321,768	2194.8		
President Brand	107	86,670	754.9	S	687	526,470	4514.3	519	387,683	3122.7		
President Steyn	105	40,473	202.3	S	662	257,822	1309.7	651	283,184	1432.9		
S. A. Lands	97	20,371	57.4	D	370	77,783	221.6	346	80,965	199.4		
Springs	105	14,280	12.3	D	412	56,526	41.6	500	55,761	32.1		
Vaal Reefs	88	39,594	206.1	D	327	148,262	803.7	270	121,043	686.5		
Welkom	100	30,629	80.7	S	645	196,490	542.4	576	170,315	463.7		
Western Holdings	117	70,770	539.4	S	720	428,387	3252.7	671	355,099	3318.3		
West. Reefs. Ex.	131	34,062	96.6	D	472	122,303	339.0	441	103,114	231.8		
Central Mining												
Blyvoor	126	80,338	568.9	J	1,085	709,013	5119.5	1,031	607,607	4293.8		
City Deep	113	23,823	10.0	D	451	94,585	41.6	569	108,171	32.7		
Cons. M. R.	120	20,713	12.3	J	1,350	202,276	141.6	1,571	222,938	103.7		
Crown	219	35,511	9.6	D	874	137,772	34.2	899	138,004	63.0		
D. Roodepoort	188	35,069	53.4	D	737	136,131	207.7	704	127,291	196.9		
East Rand Prop.	223	59,669	125.1	D	868	225,744	478.3	762	222,215	585.1		
Harmony	125	49,185	205.4	J	1,038	415,227	1640.0	796	320,590	1546.7		
Modder East	135	13,520	2.6	J	1,331	131,961	21.9	1,359	135,878	24.5		
Rose Deep	40	5,027	0.6	D	157	21,233	0.5	225	31,073	17.7		
J.C.I.*												
Freddies Cons.	58	14,249	137.3	D	224	55,770	1145.9	190	62,780	194.0		
Govt. G.M.A.	52	10,783	0.7	D	217	42,635	116.0	249	42,837	4.9		
Randfontein	34	5,963	10.1	D	123	21,514	33.4	107	18,063	20.2		
Union Corporation												
East Geduld	138	41,412	273.8	D	528	161,028	1079.1	493	151,600	1022.3		
Geduld Prop.	73	13,590	23.2	D	279	51,744	64.9	323	50,929	38.6		
Grootvlei	205	43,352	213.0	D	800	169,582	831.8	765	163,061	830.0		
Marievale	93	22,968	109.4	D	358	89,982	426.9	280	73,600	324.3		
St. Helena	150	44,991	236.2	D	565	168,241	883.4	455	134,094	616.1		
Van Dyk	79	14,592	25.2	D	304	57,042	100.3	298	53,770	89.8		
Winkelhaak	74	18,197	32.2	D	280	66,482	96.0	—	—	—		
General Mining												
Buifelsfontein	137	49,078	243.2	J	1,240	424,372	1971.3	1,099	360,694	1874.3		
Ellaton	32	7,348	29.4	D	123	28,836	119.6	127	29,345	122.1		
S. Roodepoort	30	7,209	23.5	J	297	70,660	235.4	292	68,978	249.8		
Stilfontein	143	69,926	413.0	D	530	265,928	1668.2	435	215,983	1305.1		
W. Rand Cons.	135	19,375	17.3	D	522	75,240	63.7	595	69,884	43.5		
Anglo Transvaal												
Hartebeestfontein	88	47,960	325.9	J	867	132,807	3193.3	846	464,050	3116.0		
Loraine	78	15,210	119.2	S	524	102,266	1132.4	446	84,504	1125.7		
N. Klerksdorp	10	971	111.0	D	40	4,162	135.8	41	4,300	131.2		
Rand Leases	188	28,294	20.6	J	1,820	267,297	143.2	1,683	255,279	69.9		
Village M.R.	25	4,632	1.0	J	267	47,497	8.8	315	51,579	44.4		
Virginia O.F.S.	127	31,433	10.2	J	1,143	294,117	321.7	1,001	248,595	546.7		
Others												
N. Kleinfontein	84	11,012	3.3	D	329	43,081	12.4	368	43,535	111.3		
Wit Nigel	18	4,390	5.3	J	178	43,196	58.9	178	42,796	51.9		

* Gold has been valued at 248s. 6d. per oz. fine. (March 248s. 9d.). L indicates loss. † Working Profit. * Working Profit includes sundry revenue. Table excludes profits from Uranium, Pyrite and Acid, and also production from Uranium divisions at Luipaards Vlei, Randfontein and W. Rand Consolidated.

ESTIMATED URANIUM REVENUE

Company	Year ends	April Profit (£000)	This year (cum.) (£000)	Last year (cum.) (£000)	Company	Year ends	April Profit (£000)	This year (cum.) (£000)	Last year (cum.) (£000)
Gold Fields					J.C.I.				
Doornfontein	J	13.0	146.0	203.0	E. Champ d'Or (b)	D	6.6*	26.0*	24.2*
Luipaards Vlei (a)	J	92.0	902.0	885.0	Freddies Cons.	D	35.0*	133.0*	103.0*
Vogels	D	52.0	204.0	209.0	Govt. G.M.A.	D	22.1*	88.2*	93.9*
West Drie	J	49.0	465.0	435.0	Randfontein (a)	D	105.0*	427.5*	440.7*
Anglo American					General Mining				
Daggas	D	136.3	559.5	550.0	Buifelsfontein	J	212.0	1999.0	1363.0
President Brand	S	45.0	323.0	311.0	Ellaton	D	18.0	77.0	68.0
President Steyn	S	59.0	422.0	403.0	Stilfontein	D	85.0	352.0	355.0
Vaal Reefs	D	141.4	557.8	494.0	W. Rand Cons. (a)	D	201.6	799.6	952.9
Welkom	S	57.0	399.0	372.0	Anglo Transvaal				
West Reefs Ex.	D	157.6	630.4	618.0	Hartebeestfontein	J	262.0	2578.6	2423.2
Central Mining					Loraine	S	34.0	240.0	211.0
Blyvoor	J	151.6	1535.5	—	N. Klerksdorp	D	12.0	44.0	51.0
Harmony	J	180.3	1519.8	—	Virginia O.F.S.	J	177.0	1837.5	1817.9

Table includes profit from uranium, acid and pyrite before loan redemption. (a) Total profit from uranium section. (b) Overall profit. (c) Figures not available. *Net revenue after provision for loan redemption.

THE VEREENIGING ESTATES LIMITED

(Incorporated in the Union of South Africa)

PROFITS MAINTAINED

The following are extracts from the statement by the chairman, **Mr. T. Coulter**, which has been circulated with the reports and accounts for 1958:

Comparable figures for the previous financial year are given in parentheses for easy reference.

Accounts

Gross revenue for the year amounted to £1,282,143 (£1,205,544).

Deducting expenses, including directors' fees, depreciation, sundry writings-off and provision for taxation, the net profit amounted to £1,182,723 (£1,139,370).

Adding the balance of unappropriated profit amounting to £253,197 (£245,077) brought forward from the previous year and a surplus of £30,274 arising from the realization of fixed assets, the total to be dealt with was £1,466,194 (£1,384,447). Appropriations comprised £100,000 (£100,000) to general reserve, while dividends for 1958 at 8s. per stock unit absorbed £1,100,000 (7s. 6d.—£1,031,250), leaving an unappropriated balance of £266,194 (£253,197) to be carried forward.

The final dividend, No. 71, of 5s. per stock unit was declared on January 29, 1959, making 8s. per stock unit for the year.

Share investments in subsidiary companies remain unchanged at £7,012,600, whilst the total investment in fixed assets amounting to £9,310,488 is virtually the same. Current assets amount to £1,764,110 and exceed current liabilities by £977,837, as compared with an excess of £877,217 at the end of the previous year.

Coal Industry

The subsidiary and associated companies of The Vereeniging Estates Limited produced 13,838,771 sales tons of coal in 1958, being an increase of 1,060,583 tons as compared with 1957.

Total coal production in the Union of South Africa for the year 1958 was 39,940,276 tons, an improvement of 2,253,748 tons on the previous year.

These figures indicate that the inland demand for coal continues to rise. As a result of the extensive capital programme which the railways have undertaken since the war, it has recently become evident that the railways will soon be able to meet the truckage demands of the industry. The railways have, therefore, taken steps, which became effective on April 1, 1959, to reduce the amount of coal hauled by road in the road haulage area. If the same rate of progress in rail transport improvement can be maintained, it is optimistically felt that the day is not far distant when the country will be able to eliminate completely this costly and inconvenient expedient.

A further result of the changed transport position is that the industry can again give consideration to the possibilities of supplying overseas markets. The railways have agreed to transport certain tonnages of coal to the coast and efforts are being made to re-enter the export business. Overproduction in Europe and America and coal mining developments in the Far East and Australia have created conditions which will make it difficult for South Africa to recapture its traditional markets. Nevertheless, if proper attention is paid to

quality, there seems no reason why South Africa's favourable f.o.b. prices should not attract a certain amount of trade.

Improvements in the native labour supply position generally, coupled with the improved transport facilities, have enabled a reasonable amount of stockpiling to be done at the main consuming centres, so that the industry, in so far as coal supplies are concerned, can face the 1959 winter with a more confident outlook than has been the case for a number of years.

The Government Price Controller authorized increases in the pithead prices of coal by 1s. 3d. per ton for Transvaal and Orange Free State coal, and by 2s. 1d. per ton for Natal coal with effect from October 31, 1958. The price adjustment was based on the economic position ruling at the end of 1957, and in the meantime further inroads are being made on profit margins as a result of increased costs.

In January, 1959, the subsidiary, Springbok Colliery Limited, doubled its issued capital by making a one-for-one issue at par to existing shareholders. The funds raised by this issue will be used to

repay the loan made by this company to enable Springbok to develop its second colliery in the No. 5 seam of the Witbank coal fields.

The colliery has an assured market for up to 45,000 tons per month of coking coal to be mined from this seam through a long-term agreement concluded with the South African Iron and Steel Industrial Corporation Limited. The balance of the output, of between 15,000 and 20,000 tons per month, is available for the gas coal trade. The company has underwritten the total issue free of consideration. This subsidiary anticipates that the combined operations of these two pits should enable the current rate of dividend to be maintained on the increased capital.

This additional interest constitutes a valuable increment to the company's subsidiary share investments.

Refractories

The company's interests in the refractories industry are centred in the subsidiary, Vereeniging Brick and Tile Company Limited. That company had a very successful year with improved turnover and profits which enabled it to increase its annual ordinary distribution by 1½d. to 1s. 4½d. per 5s. share, at the same time retaining £150,000 for reinvestment into new and improved works.

THE ASSOCIATED MANGANESE MINES OF SOUTH AFRICA

(Incorporated in the Union of South Africa)

TREND OF STEEL PRODUCTION AN ENCOURAGING FACTOR

MR. S. G. MENELL'S REVIEW

The 24th Annual General Meeting of The Associated Manganese Mines of South Africa, Limited, will be held on June 15 at Anglovaal House, 56 Main Street, Johannesburg.

The following is the review by the Chairman, **Mr. S. G. Menell**, which has been circulated with the report and accounts:

During the year under review there was a falling off in the demand for manganese ore and a decline in the price, which we are informed was due to the steel industry having accumulated large stocks and curtailed steel production. Towards the end of last year and since the close of the year under review, there has been an upward trend in steel production, particularly in the United States of America, and recent reports indicate a recovery in that country to over 90 per cent of rated capacity. Similarly in some countries in Western Europe there has also been an upward trend. Although there has been no appreciable improvement in the demand and prices for manganese ore, the present rate of steel production is an encouraging factor in the outlook for manganese ore.

Your company's ore shipments to overseas consumers during 1958 decreased by about 20 per cent as compared with 1957.

It is pleasing to note that after many years of restricted ore exports, due to the shortage of railway trucks, a satisfactory improvement has now been achieved in the handling of the company's traffic, by the S.A. Railways.

Profit and Dividend

The excess of income over expenditure for the year, inclusive of that of the wholly owned subsidiary, Gloucester

Manganese Mines (Postmasburg) Limited was £1,131,709 as compared with £1,314,139 for the previous year. This profit, added to the balance on appropriation account brought forward from the previous year, made available £1,291,880. An amount of £350,498 was provided for taxation. The 7 per cent cumulative preference dividend and the ordinary dividend of 90 per cent absorbed £449,627. In view of the additional capital expenditure during the year on properties acquired and developed, and on plant, machinery, and vehicles, and the calls on the shares in Feralloys Limited, as detailed in the directors' report, a further sum of £350,000 was transferred to capital reserve, leaving a balance of £141,755 on appropriation account carried forward to the current financial year. The capital reserves now stand at £1,529,256 and the general reserve is unaltered at £1,300,000.

Feralloys Limited

As stated in my review last year, your company will supply Feralloys Limited with its total requirements of manganese ore. The bulk of the ore will be supplied from the new mines, Devon and Adams, referred to in the directors' report. Feralloys Limited has made good progress in the installation of the ferro-manganese furnaces at Cato Ridge, and production is expected to commence during the latter part of this year.

In conclusion, I would like to place on record your board's appreciation of the services rendered by the company's technical advisers, the mine manager, Mr. R. L. Harris, the Durban manager, Mr. J. Campion, the staff and the employees at the mine and the Durban loading plant, and by the staffs at the head and London offices.

THE BURMAH OIL COMPANY, LIMITED

FURTHER EXPANSION IN GROUP PROFITS

The Annual General Meeting of the Company will be held in Glasgow on June 5, 1959.

The following is summarised from the Statement by the Chairman, **Mr. W. E. Eadie**, which has been sent to stockholders.

Accounts

There was a further expansion in trade and Group Profit on Trading of £6,778,505 in 1958 was greater by £537,094 than in 1957.

Dividends from Trade Investments and Other Dividends and Interest were lower in 1958 than in 1957, and after providing for taxation, the net profit for the year is £7,506,141 compared with £7,056,056 for 1957, an increase of £450,085.

The Board have appropriated £1,500,000 to General Reserve and recommend a Final Dividend for 1958 of 1s. 9d. tax free, payable to Ordinary stockholders on June 12.

Oil India Private Limited

This Company was not incorporated until February, 1959, but in the meantime operations in the oilfields continued at the pace required to reach the production target by the time the two Indian Government refineries at Gauhati in Assam and Barauni in North Bihar are due to come on stream in April, 1961, and April, 1962, respectively.

The construction of the pipeline from the oilfields to these refineries has not yet started. Discussions are taking place with the Government of India regarding provision of finance for that purpose.

GOVERNMENT OF TANGANYIKA

INSPECTORS OF MINES

Qualifications: University degree or Diploma of a School of Mines in metalliferous mining (or an equivalent qualification obtained in Australia, New Zealand, Canada, or South Africa) together with a minimum of two years, and preferably four or five years, approved post-graduate professional experience.

Age not over 35.

Duties: Administration of the prospecting, mining, and explosives laws, and the guidance, control, and inspection of mine development and working.

Terms of Appointment: On contract for one tour of 30-36 months in the first instance with gratuity on the satisfactory completion of the engagement. Emoluments in the scale £981-£1,863 p.a. Outfit allowance. Education allowance for children. Quarters provided at rental if available. House or hotel allowance if quarters not provided. Free passages. Generous leave. Free medical and dental attention. Taxation at local rates.

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Trading

The trade in Burma increased by 8.5 per cent. The requirements of all major petroleum products, save aviation gasoline, were met from indigenous crude oil refined at the Syriam and Chauk refineries.

Sales in Pakistan were 2.5 per cent greater than in 1957. This was achieved despite insufficiency of transport and import licence difficulties due to shortage of foreign exchange.

Gas sales by Sui Gas Transmission Company increased in 1958 by 24.5 per cent and provided a saving to Pakistan in foreign exchange—which would have been required for the import of oil or coal—of the order of £2 million. During 1958 the Company completed the laying of a pipe line for the Pakistan Industrial Development Corporation from Sui to Multan, a distance of 217 miles. Deliveries of gas through this pipe line are expected to reach a substantial volume toward the end of 1959.

In India, sales of petroleum products through Subsidiary and Associated Companies were 4.5 per cent greater overall, despite reductions in kerosine and motor spirit. The sale of kerosine was restricted by one of the Governmental measures taken to conserve India's foreign exchange reserves, but this restriction has now been lifted. Motor spirit trade in India continues to decline due to the increasing use of diesel-engined vehicles and the market was unable to absorb all the spirit produced at the Bombay refinery of Burmah-Shell. Because of the policy of self-sufficiency in refining capacity which obtains in many countries, it is becoming increasingly difficult to export surplus motor spirit.

Oilfield Operations

BURMA.—The Oil Companies and their Government Partner in The Burma Oil Company (1954) Limited worked together in close co-operation. Drilling and production at Chauk and Lanywa proceeded normally.

PAKISTAN.—The Balkassar field of Pakistan Petroleum Limited maintained its small but steady production of crude. Production of gas was raised substantially.

INDIA.—The efforts to find fresh reserves in the Digboi field have so far met with no success, but development proceeded successfully in the Nahorkatiya, Hugrijan, and Moran areas.

Prospecting

BURMA.—In the Delta, after completion of the first phase of the seismic survey, a well was drilled at Kyaiklat. Testing is in progress and a further site near Dedaye is being prepared for drilling.

PAKISTAN.—Last year's vigorous drilling programme was continued, so far without further success. While our results have been disappointing, and this has also been the experience of competitors, there still remain large areas of unexplored territory.

INDIA.—No further licences having been granted to Assam Oil Company, Limited, no prospecting was undertaken.

Refineries

The Syriam and Chauk refineries in Burma and the Assam Oil Company's refinery at Digboi in India operated to capacity during the year.

Public Sector Developments

The Government of India's Oil and Natural Gas Commission has discovered

oil at Cambay, and first reports indicate that the find is likely to be of commercial importance.

Government has announced in Parliament in Delhi its intention to market the products from the Government-owned refineries.

CONSOLIDATED MURCHISON (TRANSVAAL) GOLDFIELDS & DEVELOPMENT COMPANY, LIMITED

(Incorporated in the Union of South Africa)

MR. S. G. MENELL'S REVIEW

The 25th annual general meeting of Consolidated Murchison (Transvaal) Goldfields & Development Company, Limited, will be held on June 11 in Johannesburg.

The following is the review by the chairman, **Mr. S. G. Menell**, which has been circulated with the report and accounts:

The reports of the directors and technical advisers give full information concerning the operations of your company for the year ended December 31, 1958. My review will, therefore, be limited to a summary of the important features therein.

Although exports of the company's products increased considerably during the year under review, there is little change in the revenue received, which increased by £12,265 from £729,050 in 1957 to £741,315 in 1958. This was due to the U.K. metal price for 99.6 per cent regulus being reduced to £197 10s. as from November 1, 1957, as compared with £222 10s. for the first ten months of 1957.

The Year's Results

As the result of suspending certain operations as stated in my review last year, working expenditure was reduced by £156,286. After providing for taxation, additional pneumoconiosis liability, and for losses on surplus stores, the profit for the year was £343,438 as compared with £243,794 for the previous year. During the year £4,417 was appropriated for capital expenditure and Dividends Nos. 28 and 29 aggregating 160 per cent (8s. per share) absorbed £332,800, leaving £6,221 to be added to the company's unappropriated balance, which now stands at £524,406.

Current production of concentrates and cobbled ore is at a rate sufficient to meet present and projected sales. The tonnage required for this programme is being derived from the Gravelotte Section, but will later be augmented by ore from the United Jack Section, where stoping is to be resumed and an exploratory development programme initiated.

Exploratory development is being continued on 5 level and 14 level at the Gravelotte Section, as well as on 5 level at the Mulati Section.

This concludes my review of the year's operations, and I desire to place on record your board's appreciation of the services rendered by the secretaries, Anglo-Transvaal Consolidated Investment Company, Limited, the technical advisers, Johannesburg Consolidated Investment Company, Limited, and the mine manager, Mr. E. W. Sahli, his staff and employees, as well as the staffs at the London and head offices of the company.

THE STRAITS TRADING COMPANY, LIMITED

At the Annual General Meeting of The Straits Trading Company, Limited, held in Singapore on May 5, 1959, the Chairman, **Sir Even Fergusson**, who presided, said:

The Report and Accounts for the year ended December 31, 1958, having been in your hands for the prescribed time, I shall with your permission take them as read.

The year 1958 was a difficult one due to the drastic restriction of mining production imposed by the International Tin Council. The quantity of concentrates available to the Malayan Smelters was only 55 per cent of the figure for 1957, and it was inevitable that this severe contraction in our activities would affect our costs of operation and be reflected in our profits.

The year was also a difficult one for the International Tin Agreement. It was a year of uncertainty in world industrial activity, with consequently less demand for tin. The quantity arising from this, added to the automatic surplus released by the cessation of the U.S.A. Stockpile buying, rendered more difficult the operations of the Buffer Stock Manager, but it was as nothing to the consternation which was caused by Russia's alarming exports of metal during most of the year, for sale in the United Kingdom and elsewhere. By mid-September it had caused the Buffer Stock Manager to run out of funds, and when he withdrew from the market there was a consequent sharp fall in the price to £640 per ton.

It was clearly necessary for drastic measures to be taken, and in the interests of the producing countries and to protect the International Tin Agreement, the main consuming countries signatory to the Agreement placed import restrictions on metal from Russia. At the same time, negotiations were in progress with Russia to achieve some sort of adherence to the principles of the Tin Agreement. These have since resulted in an undertaking by Russia to restrict its exports to non-Communist countries to 13,500 tons per year.

These latter measures, coupled with the improving statistical position deriving from the heavy cuts in production, speedily reversed the trend, and prices were well above the floor price of £730 before the end of the year. By this time the Buffer Stock had acquired 23,500 tons of metal and an additional unknown quantity purchased with special funds raised for the purpose subsequent to the meeting in January, 1958. If one may hazard a guess, the total quantity was probably in the region of 30,000 tons.

Since then and after the meeting of the Tin Council in February this year, it was announced that the metal bought with the special funds had been disposed of, and, judging by the steadiness of the price around the £781 mark, it is safe to say that there have been steady sales from the Buffer Stock in the last two months. It may not be wide of the mark to suggest a figure of 20,000 tons as the present holding, or to suggest that a continuance of export control at current rates would see the stock liquidated in the first half of next year.

At this juncture it may be of interest to record that exports of tin metal from the United Kingdom during January and

February amounted to the very considerable total of 4,447 tons against 7,618 tons for the whole of 1958. It is assumed that much of this will have been Straits Tin shipped to the U.K. in 1957 and sold to the Buffer Stock.

The Agreement is due to expire on July 1, 1961, and by the clauses applicable to the liquidation of the Buffer Stock, its last two years have a special significance. During that period, when fixing the total permissible export, the Council is required to pay due regard to the need for reducing the quantity of metal held in the stock by the date of termination of the Agreement, and, to permit this liquidation to be accomplished, may fix the permissible export at a lower figure than it might otherwise have done. During this period of two years the Manager is permitted to sell from the Buffer Stock at any price not less than the floor price. With two months to go until July 1, the stock should then be between 15,000/18,000 tons and with two years in which to dispose of it.

It is clear that this approaching phase is a most important one, as a decision will have to be reached about the orderly disposal of the remaining stock each time permissible exports are fixed. Presumably, the first essay in this will take place at the Copenhagen meeting later on this month, though, in fact, reduction of the stock must have been a major consideration at all recent meetings of the Council.

Will the Council decide on total liquidation during the two years? Will it be able to negotiate an extension of the present Agreement which would postpone the liquidation period to a more distant future, thus enabling the scheme as devised to have a chance to operate, that is, in the price brackets of £780/£830, when the Manager cannot sell, and £830/£880 when he may sell? Or will the framework of the Agreement be subject to temporary alterations, as at present, when the Manager is empowered to sell in the £780/£830 range? These are all questions which will exercise the minds of producers and consumers for some time to come.

In particular, many producers would like to see some of their contributions to the Buffer Stock paid back in cash. Repatriation of such funds to the actual producers would be of benefit to many of them and to the countries in which their mines are situated.

A development which has recently gained adherents is the method of exporting mine production, with the approval of the Tin Council, on a barter basis for the purpose of placing the resultant metal in the U.S. strategic stockpile.

When the U.S.A. Government ceased its stockpile buying in 1957, it was understood that their reserves were ample for all strategic purposes. As nothing appears to have happened in international politics to call for a reversal of the previous decision, and indeed the U.K. Government has announced its desire to reduce its stockpile, one must conclude that the reason is the mundane but practical one that tin metal keeps better in storage than unstable agricultural products.

If a straightforward marriage between the goods of one country and those of another can be arranged without a re-

duction in the current price the tin miner receives before he will part with his product, then there is benefit to both parties. It is when a direct exchange between the products of two countries is not possible that the barter scheme becomes unwieldy and almost unworkable. For instance, Malaya does not want wheat, but by a series of international trading transactions stemming from wheat an end point might be reached where cash becomes available for the purchase of tin metal. That price may or may not be enough to induce the miner to part with some of his production to the smelter, but, from the inquiries which have been made, any final price which may eventually issue from the tortuous preliminary transactions will certainly be well below whatever market prices are current at the time.

It may well be that cash in the hand is better than tin in the ground, but consumers might not miss the point that metal was being disposed of outside the Agreement, with the sanction of the Council, though at prices below what the Council was at that time busy trying to preserve.

I now turn to the Accounts.

Earnings for the year, as foreshadowed when I last addressed you, are down for the reasons already given, and they are, of course, also affected by the 33½ per cent increase, from 30 to 40 per cent, in the rate of income tax which our legislators saw fit to impose in the last Budget. With the seriously restricted supplies available for our Works, many adjustments had to be made, and our main activities are now centred at the new Penang Smelting Works.

The Liabilities side of the Balance Sheet calls for no special comment. On the Assets side, Works and Buildings and Furniture have been subject to normal depreciation and the item remains very conservatively valued. Investments in Subsidiary Companies remains unchanged and the reduction in amounts due is reflected in the larger sum shown under Sundry Investments, about which we are again able to report that the market value is in excess of book values.

Tin and Tin Ore in Stock and in Transit is safely valued after making due allowance for smelting, treatment and contingencies. The other items call for no comment.

Satisfactory operation at Jinjang continued throughout the year, but the venture in Tanganyika continues to disappoint, as does the British Tin Smelting plant at Litherland, where the supply problem is difficult and margins narrow.

Pelam Estate had another satisfactory year, though the average price of rubber was lower. The major factory projects have now been completed and very good progress continues in the new clearings.

In these increasingly uncertain times, when many are concerned about the future, it is a relief to know that we can rely on a hard-working and loyal body of staff and workpeople, in all our enterprises, and I ask you to endorse my tribute to them for their efficient services during a particularly difficult year of re-organization and adjustment.

The Report and Accounts were adopted, and Mr. W. H. C. Bailey and Mr. A. S. Balfour were re-elected Directors of the Company.

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Mineral Production in North Vietnam

The following figures for mining production in the Democratic Republic of Vietnam (North Vietnam) have been received from a correspondent:

	Production in 1957 (tonnes)	Target for 1960 (tonnes)
Coal	1,088,000	2,700,000
Tin	104	430
Chromium	3,747	32,000
Apatite	66,000	400,000
Phosphate	22,000	65,000

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*This feature
appears every
fourth week*

I.M.M. Activities

The second part of the annual general meeting of the Institution of Mining and Metallurgy will be held on Thursday, May 21, at the Geological Society of London, Burlington House, Piccadilly, W.1.

Dr. J. H. Watson, C.B.E., M.C., A.R.S.M., Ph.D., B.Sc., chemist and assayer at the Royal Mint, London, president of the Institution for the session 1959-60, will be inducted into the chair during the latter part of the annual general meeting. He will then deliver his presidential address on "Some observations on gold refining and the standards for gold and silver coinage".

Institution Awards

The presentation of awards will be made during the second part of the annual general meeting.

The Gold Medal of the Institution for 1958 has been awarded to Dr. A. J. Orenstein in recognition of his long and distinguished service in the cause of the health and welfare of the workers in the mining industry, with particular reference to the Witwatersrand. Dr. Orenstein is director of Pneumoconiosis Research for the South African Council of Scientific and Industrial Research, and medical consultant of Rand Mines Ltd.

Honorary membership of the Institution has been conferred on Mr. W. A. C. Newman, past-president, in recognition of his services both to the Institution and to metallurgical education; on Brigadier R. S. G. Stokes, past-president, in re-

cognition of his services to the mining industry, particularly in South Africa; and on Sir Alexander Fleck, in recognition of his outstanding services to the metallurgical industry.

The Consolidated Gold Fields of South Africa Ltd. gold medal for the session 1957-58 has been awarded to Mr. F. A. Williams for his paper, entitled "Performance analyses of screens, hydrocyclones, jigs and tables used in recovering heavy accessory minerals from an intensely decomposed granite on the Jos Plateau, Nigeria" (*Transactions Instn. Min. Metall.* vol. 67); and the Consolidated Gold Fields of South Africa Ltd. premium of 40 guineas for 1957-58 has been awarded jointly to Mr. H. H. Fraser and Mr. O. E. A. Somerset for their paper, entitled "Scientific management principles applied to West African mining" (*Transactions Instn. Min. Metall.* vol. 67).

The William Frecheville Student's Prize goes to Mr. I. R. M. Chaston, Student I.M.M., for his paper, entitled "A simple formula for calculating the approximate capacity of a hydrocyclone" (*Transactions Instn. Min. Metall.* vol. 67).

Seventh Commonwealth Congress

The South African Institute of Mining and Metallurgy, who are organizing the next Commonwealth Mining and Metallurgical Congress, have reported on progress in their arrangements. The position of chairman of the Congress Executive Committee is held by Mr. M. Falcon,

hon. treasurer of the South African Institute.

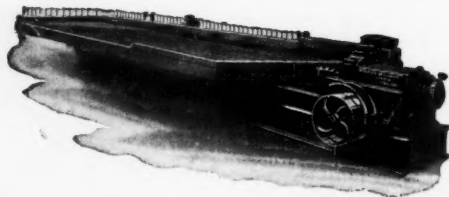
The office of president of the Congress has been accepted by Mr. C. S. McLean, technical director and deputy chairman, General Mining and Finance Corporation Ltd., a member of the Transvaal and Orange Free State Chamber of Mines Gold Producers' Committee, and a past-president of the Chamber of Mines.

Liaison has been established with the Northern Rhodesian Local Section and Southern Rhodesian Local Association of the Institute, and three regional vice-presidents of the Congress have been appointed: for South Africa, Mr. W. S. Findlay, who will be president of the South African Institute for 1960-61; for Northern Rhodesia, Sir Ronald Prain; and for Southern Rhodesia, the Hon. Sir George Davenport.

The formal Congress programme, beginning in Johannesburg on Monday, April 10, 1961, will last about six weeks, the first four weeks being spent in the Union of South Africa, centred in Johannesburg, with tours generally radiating outwards. The Congress will move to Ndola for the Northern Rhodesian programme, covering about one week, and will then spend one week in Southern Rhodesia, including a plenary session of the Congress on about May 22, 1961, at Salisbury.

Mr. H. McL. Husted, public relations officer of the Transvaal and Orange Free State Chamber of Mines, is Congress Manager. Correspondence relating to the Congress should be addressed to him at P.O. Box 809, Johannesburg, South Africa.

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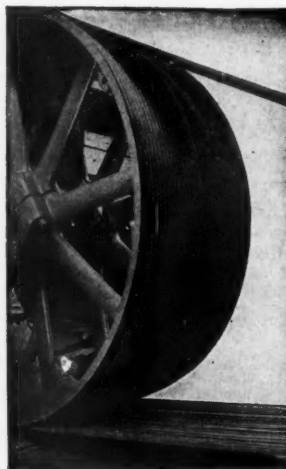
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